ARTICLES

Continental Drift: Agricultural Trade and the Widening Gap Between European Union and United States Animal Welfare Laws
Pamela A. Vesilind ................................................................. 223

The Caribbean Agricultural Health and Food Safety Agency: Implications for Regional and International Trade
The Honorable Mr. Justice Winston Anderson................................................. 255

Comprehensive Regulatory Review: Concentrated Animal Feeding Operations Under the Clean Water Act from 1972 to the Present
Hannah Connor .......................................................................................... 275

A Comparison of the General Provisions Found in Right-to-Farm Statutes
Rusty Rumley .............................................................................................. 327

Small, Slow, and Local: Essays on Building a More Sustainable and Local Food System
Mary Jane Angelo with Amelia Timbers, Matthew J. Walker,
Joshua B. Donabedian, Devon Van Noble,
Erik Phillips-Nania, Emily Parish, and Jennifer L. Perez.......................... 353

Farm Preservation: A Vermont Land-Use Perspective
Todd W. Daloz .......................................................................................... 427

The Struggle Between Man and Nature—Agriculture, Nonpoint Source Pollution, and Clean Water: How to Implement the State of Vermont’s Phosphorous TMDL Within the Lake Champlain Basin
Lara D. Guercio .............................................................. 455

NOTES

The 2008 Farm Bill: Friend or Foe to Conservationists and What Improvements Are Needed?
Mary Beth Blauser .......................................................................................... 547

Concentrated Animal Feeding Operations and Manure Runoff: Supplementing Current Regulation with Community Based Initiatives
Elizabeth Newbold .................................................................................. 571
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CONTINENTAL DRIFT: 
AGRICULTURAL TRADE AND THE WIDENING GAP 
BETWEEN EUROPEAN UNION AND UNITED STATES 
ANIMAL WELFARE LAWS

Pamela A. Vesilind∗

TABLE OF CONTENTS

Introduction ............................................................................................... 223
I. Comparing United States and European Union Animal Welfare and Food Safety Laws ................................................................. 227
    A. The United States .............................................................................. 227
    B. The European Union ......................................................................... 232
II. Trade Agreement Provisions Controlling Trade in Animal Agriculture Products Between the United States and the European Union .......... 234
    A. The General Agreement on Tariffs and Trade 1994 (GATT) .......... 234
    B. The SPS Agreement .......................................................................... 236
    C. Other Trade Agreements Regulating Agricultural Trade ............. 237
    D. The Dispute Settlement Process ....................................................... 237
III. A Double-Pronged Strategy for Future Trade Disputes ....................... 239
    A. Emerging Conflicts ........................................................................... 239
    B. Animal Welfare and Public Health Defenses: Strengths and Limitations ..................................................................................... 240
Conclusion ................................................................................................. 253

INTRODUCTION

How much is peace of mind worth? To the European Union (E.U.), it’s worth at least $117 million a year.1 Rather than accept imports of United

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1. Decision of the Arbitrators, European Communities—Measures Concerning Meat and Meat Products (Hormones), Original Complaint by the United States, Recourse to Arbitration by the
States (U.S.) and Canadian beef produced from cattle treated with synthetic or natural growth hormones, the E.U. accepted that sizable annual penalty.\(^2\) The World Trade Organization (WTO) assessed these trade reparations against the E.U. after determining that the meat products ban was unjustified for lack of sufficient scientific basis.\(^3\) Over a decade later, not only has the E.U. refused to remove the trade ban, it has also banned the import and sale of poultry produced with the “pathogen reduction treatment” chemicals used to clean chickens in most U.S. industrial packaging plants.\(^4\) In response, the U.S. has registered another complaint with the WTO.\(^5\)

It cannot have gone unnoticed by E.U. lawmakers that, in the last three years, U.S. consumers have witnessed three of the most extensive food recalls—for beef,\(^6\) peanut butter,\(^7\) and eggs.\(^8\) The media attention garnered by these increasingly dramatic events has led consumers to question the efficacy of the regulatory systems in place to protect the nation’s food supply.\(^9\) Congress eventually responded by enacting the first expansive food

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3. When the E.U. delayed complying with the WTO decision, the U.S. engaged arbitrators to determine that damages had been incurred by the U.S. and Canada in the amounts of $116.8 million and $11.3 million, respectively, and they instituted trade restrictions on certain products from the E.U. to compensate for these losses. Decision by the Arbitrators, E.C.—Hormones, supra note 1; Decision by the Arbitrators, European Communities—Measures Concerning Meat and Meat Products (Hormones), Original Complaint by Canada, Recourse to Arbitration by the European Communities Under Article 22.6 of the DSU, ¶¶ 4, 68, WT/DS48/ARB (July 12, 1999).


5. Id.


Continental Drift

safety reform legislation in seventy years.\textsuperscript{10} Critically, however, this regulatory overhaul does not address most foods derived from animals (including beef and eggs).\textsuperscript{11} In that respect, the FDA Food Safety Modernization Act is little more than a placebo.

In contrast, policies underlying E.U. animal-derived agriculture regulations have drifted away from American standards. Not only are the E.U.’s food safety and inspection regulations more stringent, but recently reformed animal welfare standards are likely to significantly alter its animal husbandry practices. Whereas the E.U. is reforming its egg industry by banning battery cages, hormones, and prophylactic antibiotics, and mandating “humane” conditions for the chickens, the U.S. has reacted to the discovery of salmonella-tainted eggs nationwide by exploring pasteurization and sterilization options.\textsuperscript{12} This growing divergence in food safety and animal welfare policies is contributing to the production of two discrete food supplies: one designed to preserve agriculture as a viable domestic industry and one designed to feed the world.

The E.U.’s progressive food safety and animal welfare policies are not without economic consequences, however. Under these policies, animal-based food products are more expensive to produce, despite the fact that less-intensive farming methods are more economical when the costly externalities inherent in “concentrated animal feeding operation” (CAFO) food production are considered.\textsuperscript{13} Unless E.U. food producers are compensated for the cost of using more humane and environmentally sound

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production methods, their products cannot survive direct competition from less-expensive American imports. Therefore, to preserve its higher food security and animal welfare standards, the E.U. must insulate its animal agriculture industries from this competition.14

Yet, the U.S. and E.U. are major trading partners, and signees to multilateral treaties drafted to encourage free trade and remove protectionist barriers.15 The current U.S. presidential administration considers agricultural trade to be “the lifeblood of many American farms and ranches” because “[c]ompared to the general economy, U.S. agriculture is twice as reliant on overseas markets.”16 This is why the twenty-year trade dispute over beef products (E.C.—Hormones) will remain a bellwether for future agricultural trade relations until U.S. agricultural practices are significantly reformed, either voluntarily or by statutory mandate.17 As E.U. animal welfare and food safety regulations are implemented more broadly, animal products derived from “factory farm” U.S corporations will be less welcome in the E.U. marketplace. Reasons for this range from the practical (economically-driven)18 to theoretical (based on concern for the environment or animal welfare).19

14. Id. at 316.
18. Gaverick Matheny & Cheryl Leahy, Farm-Animal Welfare, Legislation, and Trade, 70 L. & CONTEMP. PROBS. 325, 325 (2007). The E.U. currently sustains these standards under the Common Agricultural Policy (CAP), a subsidy program for certain products or crops. If these products are exported to a third country, the farmer or producer may receive an “export refund” of the price difference between a minimum price set by the CAP and a set “world price level” (which considers the destination country). The CAP is about one-half of the entire E.U. budget. AGRIC. & RURAL DEV., EUR. COMM’N, THE COMMON AGRICULTURAL POLICY EXPLAINED 4, available at http://ec.europa.eu/agriculture/publi/capexplained/cap_en.pdf.
19. Matheny & Leahy, supra note 18, at 341–43.
This article posits that the E.U. will ultimately prevail in a prolonged trade conflict borne of the diametrically opposed policies, and that U.S. corporations desiring access to E.U. markets will have no choice but to initiate good faith animal welfare and food safety reforms in the absence of legislative reform. Part I depicts the developing chasm between animal agriculture regulations in the U.S. and the E.U. Part II reviews the legal scaffolding on which trade agreements are built and disputes are resolved, illustrating the contradictory twin goals of supporting sovereign authority over domestic policies and enabling unencumbered international trade. Finally, Part III analyzes relevant WTO disputes and suggests arguments the E.U. might use to preserve its animal welfare standards and human health regulations, focusing on the General Agreement on Tariffs and Trade (GATT) and the Agreement on the Application of Sanitary and Phytosanitary Measures (SPS Agreement). The article concludes that, irrespective of inevitable diplomatic and economic pressure from the U.S., existing trade agreements do not foreclose the use of trade bans to preserve the E.U.’s progressive reform directives.

I. COMPARING UNITED STATES AND EUROPEAN UNION
ANIMAL WELFARE AND FOOD SAFETY LAWS

A. The United States

1. Federal Legislation

Many Americans are unaware that the Animal Welfare Act, the primary federal animal protection statute, does not apply to animals in agriculture, or that the care of farm animals is only minimally regulated and under enforced.20 In the late 1980s and early 1990s, the absence of legislative oversight—agricultural, environmental, or animal husbandry—enabled industrial agriculture corporations like Perdue, Tyson Foods, Murphy Family Farms, and Carroll’s Foods to radically and rapidly transform the landscape in mostly poor, rural communities.21 This ushered in a new era of

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20. 7 U.S.C. §§ 2131–2159 (2006); Matheny & Leahy, supra note 18, at 326, 333–35; David J. Wolfson & Mariann Sullivan, Foxes in the Henhouse, in ANIMAL RIGHTS: CURRENT DEBATES AND NEW DIRECTIONS 205, 206 (eds. Cass Sunstein & Martha Nussbaum 2005) (noting the widespread and false “presumption that the law currently provides some basic legal protection for animals, even if there is skepticism about its effectiveness or enforcement”).

animal production methods dedicated exclusively to efficiency and the commoditization of animals used for food. The hallmark of the CAFO model is a complete disregard for traditional animal husbandry practices.22

The 1958 Humane Methods of Slaughter Act does not apply to poultry, which are over ninety-five percent of all slaughtered animals,23 and the United States Department of Agriculture (USDA) has neglected to enforce humane slaughter guidelines for hogs and cattle even after a 2002 congressional resolution urged it to do so.24 The 1877 “Twenty-Eight Hour Law,” which establishes minimum guidelines for animals in transport,25 did not apply to trucking transportation until the USDA was pressured to alter its guidance in 2006.26 The last reported prosecution under this law was in 1962.27 In Congress, only members of the House of Representatives have demonstrated a genuine interest in animal welfare reform.28


23. 7 U.S.C. §§ 1901–1907. HMSA authorizes the USDA to promulgate regulations such that the animals are “rendered insensible to pain,” but only for “cattle, calves, horses, mules, sheep, swine, and other livestock.” Id. § 1902. A challenge to the USDA’s interpretation of HMSA in 2008 ultimately resulted in dismissal of the plaintiffs for lack of standing. Levine v. Vilsack, 587 F.3d 986, 992–93 (9th Cir. 2009).
27. § 80502(d) (providing for civil penalties for each incident, not for each animal, at no more than $500); see People v. So. Pac. Co., 25 Cal. Rptr. 2d 644 (Cal. Dist. Ct. App. 1962) (affirming prosecution under the Act’s former title, 45 U.S.C. §§ 71–74, with the same penalty as in the current parallel statute).
Food safety laws for meat and poultry products have not been significantly updated in over forty years.²⁹ Instead, the federal government endorses industry-led reform. This policy is often attributed to the industrial agriculture lobby’s influence in keeping regulations to a minimum³⁰ and the “revolving door” syndrome wherein agriculture industry executives and agency regulators for the USDA and the Food and Drug Administration (FDA) deftly transition from one side of the regulatory equation to the other.³¹

Perhaps due to media focus on the egg salmonella crisis of August, 2010, Americans are beginning to realize that laws for the protection of their food supply are also inadequate. The Obama administration’s Food Safety Working Group published its conclusion in 2009 that the U.S. food regulatory system “is hamstrung by outdated laws, insufficient resources, suboptimal management structures, and poor coordination across agencies and with States and localities.”³² A recent Pew Commission Report recommended the formation of a central Food Safety Administration to remedy the distributed agency model that likely contributes to current enforcement problems.³³

The new FDA Food Safety Modernization Act (Food Safety Act) is illustrative of this problem. Although it enhances the FDA’s authority to monitor, inspect, and enforce food safety standards, that agency does not have direct authority over most animal-derived food production. Under the Federal Food, Drug, and Cosmetics Act,³⁴ the FDA regulates all food

³⁰. Wolfson & Sullivan, supra note 18, at 206. Industrial agriculture in the U.S. has also enjoyed more relaxed environmental standards. See Kirby, supra note 21, at 300 (ascribing Tyson Foods’ influence to the Environmental Protection Agency’s (EPA) decision to grant large CAFOs amnesty from Clean Air Act rules).
³¹. See Sue McGrath, Only a Matter of Time: Lessons Unlearned at the Food and Drug Administration Keep Americans at Risk, 60 Food & Drug L.J. 603, 615 (2005) (explaining how frequently FDA employees initially work for industry, then for the FDA, and then are rehired by industry in a higher ranking position); see generally Thomas O. McGarity, Federal Regulation of Mad Cow Disease Risks, 57 Admin. L. Rev. 289, 390–91 (2005) (explaining the common practice of consumer advocates being hired for high ranking USDA positions).
³². FOOD SAFETY WORKING GRP., FOOD SAFETY WORKING GROUP: KEY FINDINGS (2009), available at http://www.foodsafetyworkinggroup.gov/FSWG_key_findings.pdf. The Food Safety Working Group, chaired by the Secretary of Health and Human Services and the Secretary of Agriculture, was established by President Barack Obama in March 2009 to “advise him on how to upgrade the food safety [system].” Id.
products except those specifically assigned to the USDA under the Federal Meat Inspection Act (beef, pork, sheep, and goat)\textsuperscript{35} and the Poultry Products Inspection Act (poultry).\textsuperscript{36} On the other hand, dairy products, seafood, and wild game (venison and bison, for example) are regulated by the FDA,\textsuperscript{37} while shelled eggs and egg products are regulated by the USDA, the FDA, and the Department of Health and Human Services.\textsuperscript{38}

The Food Safety Act is glaringly inadequate in what it does not do. First, it empowers the FDA to inspect and monitor only those production facilities that process non-USDA regulated foods, so the Act does not address the public health and safety issues associated with most foods derived from animals, such as beef and chicken. Yet, as the Pew Commission reported, industrial farm animal production methods create “obvious risks for both animals and humans,”\textsuperscript{39} including the overuse of antimicrobials (including antibiotics), the enhanced transfer of pathogens among genetically non-diverse animals kept in close confinement, or untreated or improperly treated animal waste exposed to plant crops.\textsuperscript{40}

Second, the Act only passively provides for FDA oversight of the farms where the crops are grown, by directing the agency to consider “science-based minimum standards” for safe “growing, harvesting, sorting, packing, and storage operations.”\textsuperscript{41} Importantly, however, because the Act does not convey regulatory authority over farms where animals are raised for food, crop contamination from animal waste—whether it is intentionally sprayed as fertilizer or it unintentionally reaches the crops in runoff water—will remain unaddressed, usually until a critical mass of consumers have alerted authorities to the contamination. \textit{E. coli} (O157) and the newly emerging higa toxin-producing \textit{E. coli} (STEC) O145, the lethal pathogens prompting the nationwide recalls of certain brands of spinach (2006) and lettuce (2010), are transmitted through animal or human feces.\textsuperscript{42} Thus, the Food

\begin{itemize}
\item \textsuperscript{37} 21 U.S.C. § 392(b).
\item \textsuperscript{38} Id. § 1031.
\item \textsuperscript{39} PEW REPORT, supra note 33, at 58.
\item \textsuperscript{40} Id. at 11, 13–15, 23–25, 85.
\item \textsuperscript{41} Food Safety Act, ch. 9, sec. 105, § 419(a), (c), 124 Stat. 3885, (2011).
\item \textsuperscript{42} Ongoing Outbreak of Escherichia Coli Serotype 0157:H7 Infections Associated with Consumption of Fresh Spinach – United States September 2006, 55 MORBIDITY & MORTALITY WEEKLY REPORT 1045, 1045–46 (2006); Escherichia 0157:H7: General Information, CENTER FOR
\end{itemize}
Safety Act becomes relevant only after field crop contamination occurs, in its enhanced products tracing and enforced recall regulations.

2. State Laws and Constitutional Amendments

State legislatures are, in many cases, federally preempted from enacting stricter food handling and safety laws,43 but not farm animal welfare laws.44 Voters at the state level generally support restrictions on the most high-profile CAFO practices, through statutory and state constitutional ballot initiatives. Examples of state progressive animal welfare reform include the phasing out of hog gestation crates and/or veal calf crates in Arizona, Colorado, Florida, Maine, Michigan, and Oregon.45 California’s 2008 “Prop 2,” the most comprehensive voter initiative, mandates a 2015 end to the use of poultry battery cages, pig gestation crates, veal calf crates, and other confinement practices that prevent an animal from “lying down, standing up, and fully extending his or her limbs . . . . [and] turning around freely.”46 Legislation under this proposition includes a ban of cow tail-docking and of slaughtering “downed” (non-ambulatory) cattle,47 and a sunset prohibition on the sale and importation of shelled eggs produced using battery cages.48


44. See, e.g., Nat’l Meat Ass’n v. Brown, 599 F.3d 1093 (9th Cir. 2010) (determining that California’s prohibition on slaughtering non-ambulatory cattle was not preempted by the Federal Meat Inspection Act).


47. CAL. PENAL CODE §§ 599(f)(b), 597n(a) (West 2010).

B. The European Union

Broader protections and considerations for farm animal welfare in Europe were recognized as early as 1976 in Western European agreements. A confluence of events in the 1990s sparked renewed interest in reform. First, Europeans experienced a series of food-related crises, including discoveries of livestock with Bovine Spongiform Encephalopathy (colloquially, “mad cow disease”) and lethal amounts of dioxin in Belgian milk. During that period, two young Londoners held the European media’s attention for months as they defended themselves pro se against McDonald’s Corporation. McDonald’s sued the activists for distributing pamphlets condemning McDonald’s business practices, particularly those that abused animals. These and other events generated support for the 1998 E.U. Council Directive to establish minimum care standards for animals “bred or kept for the production of food, wool, skin or fur” or farming, a directive that also covered amphibians and animals in aquaculture.

The 1998 Directive was followed by individual directives setting minimum care standards for calves, chickens, pigs, and laying hens, which created sunset provisions for the use of veal calf crates, battery cages, and gestation crates. Animal welfare laws were again amended in 2007 and 2008 to consider such animal needs as a twenty-four-hour day (with transitions from light to dark), humane climate and noise levels, and the

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49. Although the WTO refers to the European Union as “the E.C.” for “European Communities,” this article uses the interchangeable and more widely-used “E.U.” convention. To avoid confusion, this article refers to “E.U. law” although the technically correct term would be “E.C. law.”

Christine Fretten & Vaughne Miller, The European Union: A Guide to Terminology, Procedures and Sources, 3–4, SN/IA/3689, H.C. LIBR. (July 21, 2005) (Standard Note) (U.K.). E.U. law is mainly directives and regulations. Id. Directives are binding on member states, directing their legislating bodies to adopt laws or regulations conforming to the directive. Id. E.U. regulations are binding on every citizen of every E.U. member, irrespective of contrary state law. Id.


52. Wolfson & Sullivan, supra note 18, at 219.


54. Council Directive 1999/74/EC, art. 3–4.1, 1999 O.J. (L 203) (EC). In addition to setting nesting, feeding, and perching parameters, the directive also requires that lighting in the henhouse follow a twenty-four-hour day and that it minimize loud and sudden noises. Id. at Annex, ¶¶ 2–3. Laying hen establishments must also be registered with the member state and egg packages must be coded with the method used to produce the eggs: “Free range,” “Barn,” or “Cages.” Commission Directive 2002/4/EC, annex 2.1, 2002 O.J. (L 30) 46 (EC).
Finally, the member states affirmed their commitment to “pay full regard to the welfare requirements of animals” as “sentient beings” in the Treaty of Lisbon, the 2008 amendment to the Treaty on the Functioning of the European Union. This expressed textual commitment to animal welfare was added to the list of “Provisions having General Application,” underscoring its importance. In addition, member states may initiate more immediate or expansive protections. Germany, Austria, Sweden, and the United Kingdom are among those to have adopted enhanced living standards for farm animals and restrictions on the sale of factory-farmed products.

Complementing revised animal welfare directives are E.U. council regulations addressing health, hygiene, and inspection rules for food raised and produced in member states and imported from outside E.U. borders, and inspection and handling standards for imported live animals. Amendments to regulations on the transportation of animals also broaden protections and create an extensive, transparent record-keeping system. A 2006 Commission Decision mandated the setting of minimum inspection

57. Rasso Ludwig & Roderic O’Gorman, A Cock and Bull Story?—Problems with the Protection of Animal Welfare in E.U. Law and Some Proposed Solutions, 20 J. ENVTAL. L. 363, 364–65 (2008). It could be suggested that this amendment could be instrumental in persuading the WTO that E.U. animal welfare standards are not veiled protectionism. Id. at 380 (arguing that an amendment would “lay down a well-defined principle of Community law which [would be] binding on all Community institutions”).
and documentation requirements for animal “production sites” covered by the council directives for calves, pigs, and laying hens.66

Taking these laws in toto, E.U. agriculture policy is markedly more progressive than U.S. policy.67 Importantly, this article does not suggest that the practice of farming in the E.U. is appreciably different—yet. What is critical in international trade dispute resolution is the adoption of the standards and good faith efforts to enforce them.

II. TRADE AGREEMENT PROVISIONS CONTROLLING TRADE IN ANIMAL AGRICULTURE PRODUCTS BETWEEN THE UNITED STATES AND THE EUROPEAN UNION

A. The General Agreement on Tariffs and Trade 1994 (GATT)

The original GATT, signed by twenty-three countries in 1947, created both a textual framework and organizational entity for establishing “reciprocal and mutually advantageous arrangements” to reduce trade barriers and eliminate “discriminatory treatment in international commerce.”68 In 1994, GATT was amended to preserve the textual agreement, but replace the physical entity with a new body, the World Trade Organization (WTO).69 The 153 member states appoint ambassadors to serve on the WTO General Council and various committees, including the Dispute Settlement Body discussed below.70

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67. Some multi-national corporations rely on the disparity representing consumer sentiment. For example, in the E.U., McDonald’s Corporation has committed to acquiring all of its eggs from cage-free sources by 2011, but in the U.S., it will commit to no quota. Leora Broydo Vestel, McDonald's Board Opposes Cage-Free Eggs for U.S., N.Y. TIMES, GREEN BLOG (Apr. 13, 2010, 3:49 PM), http://green.blogs.nytimes.com/2010/04/13/mcdonalds-parries-on-cage-free-eggs. In a true “chicken and egg” explanation for the disparity, a McDonald’s spokeswoman blamed “the high consumer demand for cage-free eggs in Europe and a more robust cage-free egg production infrastructure there.” Id.
1. GATT Articles I and III

For purposes of this discussion, Articles I and III of the GATT are particularly relevant. Article I awards all members “most-favored nation” (MFN) status. Under Article I, Section 1, one MFN must treat the exports from all MFNs equally if they are “like products.” As an example, the E.U. might violate this section if it were to assign an import quota to strawberries from the U.S., but no quota to strawberries from Mexico. Article III prohibits MFNs from treating products from other MFNs less favorably than domestically-developed “like products,” whether the treatment involves trade bans, quotas, tariffs, taxes, or other restrictions on the sale of the imported products. As will be discussed, the primary analysis for a complaint invoking Articles I or III turns on whether the two sets of products are “like” each other. This analysis is especially complex in agricultural trade disputes.

2. GATT Article XX Exceptions

Article XX offers exceptions to the requirements in other GATT articles, including Articles I and III. If a WTO judicial body provisionally finds that a country’s trade measure violates Article III, it might conclude, for example, that the measure qualifies for an exception under Article XX, so long as the trade measure: (1) does not unjustifiably or arbitrarily discriminate against the complainant member; and (2) is not disguised

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71. GATT 1947, supra note 68, at art. I (“[A]ny advantage, favour, privilege or immunity granted by any contracting party to any product originating in or destined for any other country shall be accorded immediately and unconditionally to the like product originating in or destined for the territories of all other contracting parties.”).

72. Id. at art. III (“The products of the territory of any contracting party imported into the territory of any other contracting party shall be accorded treatment no less favourable than that accorded to like products of national origin in respect of all laws, regulations and requirements affecting their internal sale, offering for sale, purchase, transportation, distribution or use.”).

73. Id. (“The contracting parties recognize that internal taxes and other internal charges, and laws, regulations and requirements affecting the internal sale, offering for sale, purchase, transportation, distribution or use of products, and internal quantitative regulations requiring the mixture, processing or use of products in specified amounts or proportions, should not be applied to imported or domestic products so as to afford protection to domestic production.”).

74. A trade ban may be defended using one or more of these exceptions, because it may serve multiple purposes. For example a ban on certain alcoholic beverages may address human health and public morality concerns. Steve Charnovitz, The Moral Exception in Trade Policy, 28 Va. J. INT’L L. 689, 692, 694 (1998).

75. Article XX is interpreted and applied as broadly as other sections of GATT. GATT 1947, supra note 68, at art. XX.
protectionism. These two requirements are the GATT “chapeau,” which tests trade barriers for good faith.

This article focuses on four Article XX exceptions for trade measures which might otherwise violate GATT: (1) when the measure is “necessary to protect public morals;”78 (2) when it is “necessary to protect human, animal or plant life or health;”79 (3) when it is “necessary to secure compliance with laws or regulations which are not inconsistent with” GATT,80 and (4) when it is one “relating to the conservation of exhaustible natural resources[,] if such measures are made effective in conjunction with restrictions on domestic production or consumption.”81 In analyzing whether an exception applies, the WTO judicial body generally follows an analysis that first evaluates the importance of the interest or value the member nation seeks to protect or conserve. It then balances the interest or value with the measure’s impact on trade. Finally, it considers the viability of less-restrictive alternative measures (which potentially impact whether the measure is “necessary”).82 Additionally, it may also consider whether the measure is likely to satisfy the stated goal.83

B. The SPS Agreement

The SPS Agreement is an extension of GATT’s Article XX(b) exception permitting trade barriers that are “necessary to protect human, animal or plant life or health,” setting the guidelines for a MFN’s sanitary (food safety) and phytosanitary (animal health) regulations. To illustrate, when a member initiates a trade measure alleging public health reasons (such as the E.U.’s trade ban on meats produced using growth hormones) the measure must be proportional to the level of risk, and it must be based on “international standards, guidelines or recommendations, where they exist.”84 Only when a member has “scientific justification” may it institute trade measures based on higher sanitary or phytosanitary standards than

76. Id.
78. GATT 1947, supra note 68, at art. XX(a).
79. Id. at art. XX(b).
80. Id. at art. XX(d).
81. Id. at art. XX(g).
82. Cheyne, supra note 77, at 948.
84. SPS Agreement, supra note 15, at art. 3.1.
those recognized by international organizations such as the Codex Alimentarius Commission (Codex), the World Organization for Animal Health (OIE), and the International Plant Protection Convention (IPPC).85

Herein lays the SPS Agreement’s fatal internal contradiction: its acknowledgment that a WTO member is a sovereign state with the inherent right to protect the safety of its citizens, versus the quest to “harmonize the sanitary and phytosanitary measures on as wide a basis as possible.”86 Because the WTO’s mission includes resolving differences in national food quality and safety standards to facilitate international trade, the pursuit of these standards carries with it the danger of accommodating the lowest common denominator.

C. Other Trade Agreements Regulating Agricultural Trade

Although beyond the scope of this article, the Agreement on Technical Barriers to Trade (TBT Agreement) and the Agreement on Agriculture are occasionally invoked in agricultural trade disputes. The TBT Agreement addresses technical product and manufacturing specifications that affect international trade, and it encourages members to adopt international standards. The Agreement on Agriculture attempts to establish long-term goals and commitments for resolving issues of domestic subsidies, access to export markets, and food safety or plant or animal health.87

D. The Dispute Settlement Process

Under the WTO regime, trade disputes among members are addressed by the Dispute Settlement Body (DSB). The dispute resolution process begins when one member files a complaint against another member, alleging violation of one or more WTO agreements. Because mediation is preferred to judicial resolution, the first stage is typically a mandatory sixty-day consultation period during which the WTO director general may mediate negotiations. If no resolution is reached, the complaining party requests DSB approval to form a Dispute Panel to hear the dispute. The parties to the dispute choose three panelists of unbiased experts in the dispute’s subject matter; this panel hears the parties’ arguments, optionally considering input from third parties asserting a formal interest in the action.

85. Id. at arts. 3.3, 3.4.
86. Id. at art. 3.1.
87. Agreement on Agriculture, supra note 15, at pmbl.
The panel renders its decision in the form of a report generally no less than six months from the beginning of the proceedings.\textsuperscript{88}

Either side may appeal any legal interpretation or determination in the panel report to a DSB Appellate Board. The Appellate Board hears the legal arguments, reviews the panel’s decision, and renders its own report. If the defending party in the dispute is found to have violated WTO trade agreements, it is expected to accept and implement the DSB decision.\textsuperscript{89} On the exceptional occasion when a member refuses, the complaining member may request that the DSB authorize sanctions against the offending nation in an amount calculated to compensate the complaining member for the defending member’s trade violations.\textsuperscript{90}

The DSB adopts the panel or appellate body report within sixty days, making the decision binding on all members—unless the members \textit{unanimously} reject it. Because every member of the DSB has a vote in this process, all post-1994 GATT decisions have been adopted by this method of “reverse consensus.”\textsuperscript{91} This makes DSB decisions binding on a de facto basis, should a similar dispute arise later between other members. Thus, the DSB has considerable authority over international economic, political, and social affairs.\textsuperscript{92}

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88. \textit{Understanding the WTO: Settling Disputes, a Unique Contribution}, WTO, \url{http://www.wto.org/english/thewto_e/whatis_e/tif_e/disp1_e.htm} (last visited Nov. 14, 2010) [hereinafter \textit{Understanding the WTO}]. Panel and Appellate Body reports are publicly available, but the proceedings may be kept confidential. \textit{Id.}

89. \textit{Id.} The Appellate Body is composed of seven WTO representatives serving four-year terms. \textit{Id.} Three members hear the appeal. \textit{Id.}

90. One such exceptional case is \textit{E.C.—Hormones}, wherein the E.U. has delayed and resisted terminating its trade ban on certain meat products. Sebastiaan Princen, \textit{EC Compliance with WTO Law: The Interplay of Law and Politics}, 15 EUR. J. INT’L L. 555, 570 (2004) (“[D]omestic support for the import ban within the EC was simply too strong for the WTO rulings to have a decisive effect.”).

91. \textit{Understanding the WTO}, supra note 88.

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III. A DOUBLE-PRONGED STRATEGY FOR FUTURE TRADE DISPUTES

A. Emerging Conflicts

As discussed in Part I, the E.U. amended its animal welfare and food safety directives in the late 2000s, while U.S. animal welfare regulations have remained relatively static for several decades and the only significant advancement in food safety legislation in seventy years exempts most animal-derived foods. This regulatory disparity sets the stage for more trade disputes in which the E.U. will ban or limit importation of animal products produced under domestically prohibited farming or food handling practices.

One instance of this trend is the E.U. ban on imports of poultry treated with pathogen reduction treatment chemicals (PRTs), used “to reduce the amount of microbes on the meat” during the packaging process.93 The U.S. asserts that the ban “effectively prohibit[s] the shipment of virtually all” U.S. poultry and has consequently challenged this ban before the DSB. The U.S. complaint, submitted in 2009, alleges that the ban violates GATT, SPS, and other agreements. Specifically, the complaint argues that scientific evidence supports the U.S.’s conclusion that PRTs are not unsafe for human consumption. As of this writing, more than a year after the DSB agreed to hear the dispute, it had still not chosen the panelists.94

Considering its aggressive trade policy objectives, the U.S., logically, will prepare for additional trade disputes involving U.S. farming and food-handling practices not conforming to E.U. standards.95 As 2007 and 2008 E.U. directives revising animal welfare standards for chickens, pigs, and calves become widely implemented across the member states, increasing financial consequences will inevitably lead to trade restrictions designed to protect the commercial viability of E.U. products from low-priced CAFO-

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95. The FDA’s recent request that the livestock, hog, and poultry industries voluntarily decrease the amount of preventive antibiotics they use as growth enhancers may be a preemptive attempt to show a good faith effort of reform. Nathan Phelps, FDA Targets Antibiotic Usage in Livestock, DES MOINES REG., Aug. 10, 2010, at A07, available at http://www.greenbaypressgazette.com/article/20100810/GPG03/8100485/1247.
raised imports. Additionally, as the global food system becomes increasingly multi-layered and complex, food safety issues will take on national security importance. This suggests that enhanced E.U. food labeling and tracking information requirements for both live animals and animal products will likely also be a source of trade conflict.

This article submits that when the E.U. implements a trade ban pursuant to domestic animal welfare or food safety law, it should prepare to defend these trade measures with a dual-pronged strategy, relying on both its animal welfare and public health policy directives. The two issues are synergistically interconnected because the CAFO model promotes the gravest food-related public health and safety threats and intrinsically sweeping inhumane treatment of animals. Finally, when appropriate, the E.U. could expand its argument to include environmental policies and initiatives. The approach of a multi-pronged defense to a challenge before the WTO increases the E.U.’s options for passing DSB scrutiny.

B. Animal Welfare and Public Health Defenses: Strengths and Limitations

1. GATT Analysis

In order for the E.U. to defend a trade ban on products produced by farming methods not conforming to E.U. standards, it should first position domestically produced products as dissimilar to the banned imports to avoid violating GATT Article III. In other words, the E.U. should dispute that it is treating “like products” unequally or discriminatorily because products derived from animals under distinctly different animal husbandry standards and phytosanitary conditions are sufficiently dissimilar from CAFO-derived products. The animal products should be characterized as dissimilar regarding their (1) production methods; (2) marketability to discerning consumers; and (3) human health effects. Because past dispute panel and appellate board decisions reveal no reliably consistent method of analysis, the most strategic argument will use every available angle. Moreover, the

97. PEW REPORT, supra note 33, at 31–39.
E.U. should emphasize the DSB’s commitment to reviewing each “like products” dispute on a case-by-case basis.99

Modern DSB decisions, such as Japan—Alcohol, suggest that the analysis will consider, inter alia: “(1) the properties, nature and quality of the products; (2) the end-uses of the products; [and] (3) consumers’ tastes and habits.”100 Regarding the first factor, the E.U. could argue that humane husbandry practices yield a higher quality meat product, and offer physical evidence to this effect. The DSB may not be receptive to this position, as it has previously determined that, even if two products have different physical characteristics, they may still be “like” each other under Article III:4 if they are “directly competitive or substitutable products.”101 To illustrate, a 1991 GATT panel determined that a U.S. ban on tuna caught using methods contrary to the U.S. Marine Mammal Protection Act violated Article III:4 because the ban specified the manner in which the tuna was caught (by net or by fishing line), not the physical qualities of the tuna products themselves.102

To the second consideration, the “end uses” of the animal products in question will be the same: human consumption. However, the DSB has recognized that a product’s properties and end-uses may be distinguished by their marketability and consumers’ tastes and preferences in selecting the product.103 Therefore, the E.U. should emphasize how consumers in both the U.S. and E.U. value foods produced under allegedly humane standards (bearing labels such as “grass-fed cattle” or “free-range chickens”), or under organic guidelines. The evidence should demonstrate that consumers view these as “premium” products, and that they will pay more for them.104

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Evidence of strong E.U. domestic consumer distaste or dislike for inhumane production methods should also be introduced.\textsuperscript{105}

Consumer preferences or perceptions are particularly relevant when they are motivated by ethical considerations. Thus, the E.U. should submit evidence that its consumers would not find CAFO-produced products interchangeable with “humane” products, irrespective of whether they could distinguish the products’ physical properties. It should be documented that widespread consumer support for animal welfare reform contributed to the most recent animal welfare policy initiatives and regulations.\textsuperscript{106}

Most importantly, the E.U. should emphasize the health risks associated with products produced using certain banned methods (such as use of growth hormones or PRTs in the packaging process). \textit{E.C.—Asbestos} underscores the importance of assessing a product’s health risks in the “physical properties” analysis.\textsuperscript{107} When France banned the domestic production or use of fibers containing asbestos, Canada challenged the ban as a violation of GATT Article III, claiming that fibers with and without asbestos were “like products.”\textsuperscript{108} In the alternative, Canada suggested that a less-restrictive trade measure would involve a “controlled use” of fibers containing asbestos.\textsuperscript{109} The appellate body disagreed on both counts, finding that the health concerns created a higher standard of review for any suggested alternatives.\textsuperscript{110}

In another dispute demonstrating this lesson, Mexico’s import tax on soft drinks sweetened with ingredients other than cane sugar was declared a trade violation because sodas and syrups using high fructose corn syrup (HFCS) were “like” beverages made with cane sugar. The appellate body reasoned that the beverages had “virtually identical physical properties, willing to choose one product instead of another to perform the same function is highly relevant in assessing . . . likeness.” (quoting Appellate Body Report, \textit{E.C.—Asbestos}, supra note 103, ¶ 92).

\textsuperscript{105} Sikina Jinnah, Note, \textit{Emissions Trading Under the Kyoto Protocol: NAFTA and WTO Concerns}, 15 GEO. INT’L ENVTL. L. REV. 709, 731 (2003) (explaining the Appellate Body’s decision in \textit{E.C.—Asbestos} that “the ‘physical properties’ of the products must be analyzed in light of the effect that difference in such properties may have on the marketability of the products”).

\textsuperscript{106} Archibald, \textit{supra} note 99, at 25.

\textsuperscript{107} Appellate Body Report, \textit{E.C.—Asbestos}, supra note 103, ¶¶ 101–02. Earlier decisions also support the importance of the “public health” angle. \textit{See} Farber & Hudec, \textit{supra} note 98, at 1424–25 (discussing the U.S.’s position in a pre-WTO case that it was warranted to distinguish among malt beverage products based on the health effects and the alcohol content, in Report of the Panel, \textit{United States—Measures Affecting Alcoholic and Malt Beverages}, ¶ 5.74 (Mar. 16, 1992), GATT BISD (39th Supp.) at 206 (1993)).


\textsuperscript{109} \textit{Id.} ¶ 17.

\textsuperscript{110} \textit{Id.} ¶ 118, 174–75.
end-uses and . . . [were] equally preferred by consumers.” Rather than exploring the health effects of HFCS, Mexico unsuccessfully claimed an exception under GATT Article XX(d), discussed infra, that the tariff was necessary to ensure U.S. compliance with the North American Free Trade Agreement (NAFTA). A more compelling position might have been one that highlighted the effects of HFCS on Mexico’s dramatically rising childhood obesity rate, its problems providing access to safe drinking water, and its status as the number one importer of Coca-Cola products.

2. “Chapeau” Analysis

If the E.U. fails Article III’s “like products” test, it could prevail under an Article XX exception. Exceptions, however, must first pass the “chapeau” good faith requirement that the challenged trade ban or restriction is not an arbitrary or unjustifiable discrimination, or a disguised trade restriction. The appellate body’s decision in U.S.—Shrimp is illustrative. The U.S. had banned imported shrimp caught with nets that inadvertently trapped endangered turtles protected under the Endangered Species Act. The appellate body discerned that this ban failed the chapeau because the U.S. had unilaterally instituted the ban without first making a good faith effort to negotiate international compliance with the U.S. law.

112. Mexico claimed that the tax was necessary to secure the U.S.’s compliance with NAFTA, a non-WTO treaty. Finding that NAFTA was not the type of law covered under XX(d), and that the measure was not necessary to enforce the U.S.’s obligations under the treaty, the exception was denied. Appellate Body Report, Mexico—Tax Measures on Soft Drinks and Other Beverages, ¶¶ 82–84, WT/DS308/AB/R (Mar. 6, 2006) [hereinafter Appellate Body Report, Mexico—Corn Syrup].
114. Appellate Body Report, United States—Import Prohibition of Certain Shrimp and Shrimp Products, ¶ 171, WT/DS58/AB/R (Oct. 12, 1998) [hereinafter Appellate Body Report, U.S.—Shrimp I]. In U.S.—Shrimp I, the U.S. argued for an exception under Article XX(g), relating to the conservation of endangered migratory sea turtles being caught and killed in commercial fishing nets. Id. ¶¶ 125–28. The U.S. met the exception provisionally, because the endangered turtles were “exhaustible natural resources,” and the rules were sufficiently related to their conservation. Id. ¶ 25. However, the U.S. had not consulted with all affected member countries or attempted to negotiate a regulatory program to everyone’s satisfaction. Id. ¶ 156. (“[A] balance must be struck between the right of a Member to invoke an exception under Article XX and the duty of that same Member to respect the treaty rights of the other Members.”) The U.S. then attempted good faith negotiations with the complaining countries. Id. ¶ 129–34. In a perhaps predictable outcome, no compromise or resolution was reached, and the subsequently issued “Shrimp Recourse Report” suggested that even good faith requirements have their limits. Appellate Body Report, United States—Import Prohibition of Certain Shrimp and Shrimp Products-
Chapeau analysis asks: (1) whether the trade measure recognizes and accounts for problems that dissimilarly situated countries might encounter in attempting to comply with the measure; (2) whether the country attempted to negotiate an agreement with all interested parties before instituting a trade measure; and (3) whether the measure is discriminatory in its enforcement.115

To comply with the first requirement, an E.U. trade ban must be based on comparable results, not specific guidelines designed to achieve these results. For example, the E.U. may not require that exporting countries adhere to specific physical measurements for pig housing, but it may require that pigs be raised in quarters with enough room to turn around and roll over.

As to the second requirement, before adopting a trade restriction, the E.U. must attempt to negotiate an equitable agreement to achieve its animal welfare or food safety goals. In a sense, this is an echo of the WTO’s mission to encourage international standards, not disparate, nation-specific guidelines. Establishing international farm animal welfare standards is an inherently problematic goal, considering variable economic pressures and incongruous religious and ethical value systems. There are no such current comprehensive animal welfare standards, although the OIE has begun the process by establishing standards for transporting and slaughtering animals.116

The OIE—which represents 176 countries, including the U.S. and the E.U.—tracks, researches, and publishes information regarding the prevention of and best practices for managing animal diseases,117 and recommends standard practices for ensuring the safety of animal-derived foods.118 The WTO has a non-binding agreement with the OIE to consult

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118. Objectives, WORLD ORGANISATION FOR ANIMAL HEALTH, http://www.oie.int/eng/OIE/en_objectifs.htm (last updated Oct. 11, 2010). The OIE also works with another WTO reference organization, the Codex Alimentarius Commission, established by the Food and Agricultural Organization of the United Nations and the World Health Organization “to protect the health of consumers and ensure fair practices in food trade.” FAQs—General Questions, CODEX
with the organization on SPS Agreement issues, such as the E.C.—
Hormones dispute. 119 Unfortunately, the OIE is not the ideal candidate to
create animal welfare standards, because its mandate is human-centric: to
protect the food supply from diseased or otherwise unhealthy animals; to
protect humans from diseases transmissible to and from animals; and to
curtail the spread of animal disease via international trade. 120 Its focus on
animal welfare is necessarily founded on “a science-based approach,”
drawing on “the close relationship between animal health and animal
welfare.” 121

Thus, an animal welfare proposal will require only that adopted
standards further human safety goals and be based on scientific data.
However, not all inhumane modern agricultural practices satisfy these
criteria, just as not all practices that create public health risks are strictly
inhumane. For example, the common practices of “de-beaking” poultry
birds and “tail-cropping” hogs or cattle, without anesthesia, invoke no
direct health concerns but are unquestionably painful to these animals. 122
Conversely, the prevalent use of sub-therapeutic antibiotics or hormones
certainly raises human health concerns, but is not in itself inhumane. 123
Until broad international consensus supports the creation of a third-party
organization capable of establishing meaningful animal welfare standards,
the E.U. should defend its own guidelines irrespective of recommendations
from the OIE or another similar organization. 124

ALIMENTARIUS COMM’N, http://www.codexalimentarius.net/web/faq_gen.jsp#G1 (last visited Nov. 15,
2010).

119. Agreement Between the World Trade Organization and the Office International Des
Epizooties, WORLD ORGANISATION FOR ANIMAL HEALTH (May 4, 1998), http://www.oie.int/about-
us/key-texts/cooperation-agreements/agreement-with-the-world-trade-organization-wto/. The SPS
Agreement specifically designates that, in order “[t]o harmonize sanitary and phytosanitary measures on
as wide a basis as possible, Members shall base their sanitary or phytosanitary measures on international
standards, guidelines or recommendations where they exist[,]” SPS Agreement, supra note 15, at
art. 3.1. Nothing in the WTO-OIE agreement or the SPS Agreement gives OIE standards or
recommendations anything more than persuasive effect on WTO proceedings or member nations.

120. Objectives, supra note 118.

121. Id.

122. PEW REPORT, supra note 33, at 33–35; see also American Veterinary Medicine Assoc.
/tail_docking_cattle.asp (last visited Jan. 13, 2011) (opposing the practice due to lack of scientific
evidence supporting its necessity and the observing that “it can lead to distress during fly seasons”).

123. PEW REPORT, supra note 33, at 6.

124. If created by the right third-party organization, one with no conflicts of interest or
vulnerability to industry influences, animal welfare standards for agriculture could be instrumental in
defending an import ban based on animal husbandry regulations. The organization should be a WTO
reference organization, so that the DSB will consider its input in resolving trade disputes involving
questions of animal welfare.
Returning to the final step in a typical chapeau analysis, the country instituting a trade measure cannot create or enforce the ban in a manner suggesting discriminatory motives against specific exporting members. Until now, this article has assumed for purposes of discussion that E.U. animal welfare and food safety laws are generally enforced. To temporarily suspend this illusion, it bears mention that some E.U. states have lagged in adopting higher animal welfare standards. A 2008 undercover investigation in five countries with major pork markets revealed that although conditions for pigs are somewhat improved vis-à-vis pigs in the U.S., illegal practices are still conducted on a large scale.125 It is also reported that unnamed corporations have applied to build CAFO facilities in England.126

Nor is the problem confined to Western Europe. Prior to accession, former Soviet countries were attractive venues for Smithfield Foods, the world’s leading pork producer. Smithfield sought to expand in countries with lax environmental standards and loosely organized governments,127 and it now owns a vast majority of the Polish and Romanian pork markets.128 It is critical that the E.U. assist these new member states in conforming, not give them extra time to conform. General tolerance to reform resistance will expose an E.U. trade ban to the valid assertion that the ban is veiled protectionism for E.U. farmers. As an example, the Appellate Body Report in E.C.—Hormones observed that some E.U. states were still using growth hormones, a fact that it found persuasive in its determination that protectionism was at the root of the trade ban, not human health concerns.129

3. Exceptions Analysis

a. Necessary to Protect Public Morals

The DSB has recognized that protecting public morals is among a country’s “most important values or interests.” Nevertheless, identifying “public morals” is exigent because it is difficult to measure objectively or with scientific data. Moreover, the history of negotiating sheds little light on “what morality and whose morality is covered,” aside from the possibility that an acceptable morality issue might involve alcohol. If an E.U. animal welfare law is designed to preserve societal decorum or to discourage corruption of moral character, then the parallels to these disputes are clearer. On the other hand, if an animal welfare law exists to protect sentient animals from unnecessary cruelty for the animals’ own sakes, then a trade ban in furtherance of this law would be dissimilar to public morality laws advanced in previous disputes.

A trade ban relying on this exception will be analyzed as to whether it actually concerns “public morals,” and next, whether it is “necessary” to protect these morals (if less restrictive trade measures are available). Thus, such a ban should be positioned as necessary to protect E.U. citizens from the “moral taint” caused by marketing products produced under practices that E.U. citizens “believe to be cruel.” The E.U. should assert that an import ban on non-conforming products would aid its citizens in advancing and protecting the moral imperative that supported enacting these regulations in the first place, particularly in light of typical industry resistance to such regulations.

130. GATT 1947, supra note 68, at art. XX(a).
132. Galantucci, supra note 77, at 287.
133. Charnovitz, supra note 74, at 704–05.
134. Galantucci, supra note 77, at 291 (noting the “strong indication that the GATT drafters intended to define ‘public morals’ in accordance with a country’s prevailing cultural norms”).
136. Charnovitz, supra note 74, at 695.
137. Galantucci, supra note 77, at 294 (discussing a trade ban under the morals exception as an exercise within the country’s liberty); Stevenson, supra note 104, at 126 (arguing that a trade ban under this exception would not be an assertion of extra-territoriality to influence agricultural practices in other countries, but an expression of sovereign authority to limit support for these practices domestically).
138. Appellate Body Report, China—Audiovisuals, supra note 131, ¶ 246 (striking China’s “public morals” argument as more likely an exercise in government censorship); Galantucci, supra note 77, at 290 (recognizing that “[i]mport and export policies have historically shown concern for the
The E.U. has a loftier challenge in showing that less restrictive alternatives that the U.S. might suggest are not “reasonably available” because a ban is de facto the most restrictive measure. An alternative measure is not “reasonably available” if it is only “theoretical in nature,” creates an undue burden (such as “prohibitive costs or substantial technical difficulties”), or if the member cannot implement or adopt it. The U.S. could suggest alternative measures such as a tariff (wherein the proceeds are used to improve animals’ conditions elsewhere in the E.U.) or mandated labeling, which would allow informed consumers to exercise their morality in the marketplace. Here, the E.U.’s challenge would be to portray alternative measures as detrimental to public morality, whereas the U.S. would assert that the morality argument is merely a pre-textual excuse for protectionism of domestically produced products. The U.S. asserted this same argument in the most recent “public morals” dispute, China—Audiovisuals. In this dispute, the U.S. successfully challenged China’s trade restrictions on imports of certain reading materials and home entertainment audio and video materials. This dispute suggests that a public morals exception, on its own, is unlikely to support a broad trade ban.

b. Necessary to Protect Human or Animal Life or Health

There are two ways a trade ban could be defended using this exception: farm animal health and human health. The animal health argument would require the DSB to consider first whether one country may erect a trade measure aimed at protecting the life or health of an animal in another country. It will next consider whether the measure actually serves that goal. Finally, the DSB will inquire as to whether the measure is “necessary” to meet that goal. Although there is precedent for arguing that this exception is not limited by geography, and the DSB has considered animal health humane treatment of animals, although the interests of free trade have consistently won out”); Stevenson, supra note 104, at 126.


140. Id. The alternative measure suggested by the U.S. in China—Audiovisuals, a system by which government employees could screen imports for nonconforming content, was “reasonably available” because China could not demonstrate that the burden rose to the level of “undue.” China—Audiovisuals, supra note 131, ¶ 328.

141. Appellate Body Report, China—Audiovisuals, supra note 131, ¶¶ 243, 248 (presenting China’s defense that the restrictions were “[necessary] to protect public morals by avoiding the dissemination of goods containing prohibited content within China”).

142. GATT 1947, supra note 68, at art. XX(b).

143. Panel Report, Tuna-Dolphin, supra note 102, at 10.
severable from human health, any argument predicated on the consideration for an animal’s health and welfare will be undercut by the reality that the animal is, ultimately, part of the food chain.

An argument founded on human health concerns will be far more persuasive. The appellate body in Brazil—Tyres affirmed the panel’s judgment that human health concerns are worthy of more pronounced consideration. Brazil could have defended its import ban on retreaded tires by arguing that the tires’ short life spans created environmental hazards in the form of overflowing landfills. Instead, Brazil cleverly stressed the human health hazards created by these overflowing landfills, which they argued attracted mosquitoes carrying dengue fever and malaria. The Appellate Body mirrored its analysis on E.C.—Asbestos, and found that the health concerns were so valuable as to outweigh other factors or even alternative measures that were “less trade restrictive while providing an equivalent contribution to the achievement of the objective.” Thus, in arguing for this GATT exception, the E.U. should cite both E.C.—Asbestos and Brazil—Tyres for the propositions that a nation has the “right to determine a level of protection of health that [it considers] appropriate in a given situation” and that “there is no requirement under Article XX(b) to quantify, as such, the risk to human life or health.”

The greatest obstacle to using this exception will be connecting a human health risk to the products at issue. E.C.—Hormones demonstrates this problem, but it does not foreclose the possibility that the E.U. could produce sufficient scientific evidence to persuade the DSB that a ban is legitimate under both exception XX(b) and the SPS Agreement’s

144. Appellate Body Report, Brazil—Tyres, supra note 83, ¶ 179.
145. Id. The Panel decided that the trade restriction could not pass the chapeau because Brazil allowed retreaded tire imports from nations with which it had a separate trade agreement, and also allowed domestic companies to retread tires. Panel Report, Brazil—Measures Affecting Imports of Retreaded Tyres, WT/DS332/R (June 12, 2007, amended by Appellate Body Report, Brazil—Tyres [hereinafter Panel Report, Brazil—Tyres]. The Appellate Body rejected the Panel’s use of U.S.—Gambling’s chapeau analysis assessing the necessity of a trade measure by whether the measure is “located significantly closer to the pole of ‘indispensable’ than to the opposite pole of simply ‘making a contribution to.’” Appellate Body Report, Brazil—Tyres, supra note 83, ¶ 90.
146. Panel Report, Brazil—Tyres, supra note 145, ¶¶ 7.109, 7.118, (“The Panel notes that the European Communities’ argument concerns the issue of quantification of the reduction of waste tyres in Brazil while Brazil’s answer to that argument concentrates on the quantification of the risk to human health and life.”).
147. Appellate Body Report, Brazil—Tyres, supra note 83, ¶¶ 178.
requirement to base sanitary and phytosanitary restrictions on “scientific justification.”

The Board’s interpretation of the SPS risk assessment requirements appears to be slightly relaxed under E.C.—Asbestos and Brazil—Tyres. A sanitary measure need only be “based on an assessment, as appropriate for the circumstances,” whether carried out by the defending member, another member country, or a third-party organization. Moreover, a health risk assessment does not need to be dispositive. “The requirement that an SPS measure be ‘based on’ a risk assessment is a substantive requirement that there be a rational relationship between the measure and the risk assessment.” What this means, exactly, is open to interpretation. It has been suggested that the Appellate Body has demonstrated a willingness to apply an “holistic-risk logic” in determining whether a rational relationship exists, as opposed to a stricter and more mainstream “quantitative-risk logic.” In other words, the Appellate Body’s most recent E.C.—Hormones decision may indicate a willingness to consider societal ethics and values in addition to scientific evidence that a certain practice creates a probable risk of a harmful result. The risk assessment option thus becomes a waiting game, with the E.U. stalling for time while it develops the scientific evidence necessary to support its domestic policies and trade restrictions. The U.S. is left in the uncomfortable position of having to defend its preference for industry-led reform, and celebrating dubious triumphs such as the 2009 Memorandum of Understanding (MOU) allowing U.S. beef products not produced using hormones into E.U. countries, duty-free. Although hailed as a U.S. victory, the MOU created no more access to E.U. markets than hormone-free U.S. beef had in 1989.

151. Id. ¶ 193 (emphasis added). The Board found that the reports offered by the E.U. conforming to “risk assessment” guidelines were not rationally related to the E.U. directives banning the use of growth hormones. Id. ¶¶ 195–97.
153. Id. at 13.
when a task force representing these major trading partners reached a similar agreement.155

c. Necessary to Secure Compliance with Domestic Laws156

An alternative argument, but one unlikely to prevail, is that a trade ban would be necessary to secure compliance with domestic public health and safety laws. As discussed above, this argument was unsuccessful when Mexico used it to support a tariff on beverages and syrups containing HFCS. Even more demonstrative is Korea—Beef, a dispute in which the DSB struck down Korea’s retail restrictions on the sale of imported and domestic beef.157

Korea’s retail regulations, which applied only to fresh or chilled beef sold sliced and unpackaged, required butcher shops and other retail establishments to choose between selling imported or domestic beef. This was the government’s solution to the “strong incentive” butcher shops had to pass off less expensive imported beef as the more expensive domestic variety, a violation of consumer fraud laws.158 When Korea argued that the restrictions were “necessary to secure compliance with” its deceptive businesses practices act,159 the panel held the restriction to an almost impossible standard, requiring Korea to prove that no alternative measures were available to accomplish the same goal.160

The U.S. argued that a less restrictive alternative solution would be to actively enforce the deceptive practices law with prosecutions and fines, but

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156. GATT 1947, supra note 68, at art. XX(d).
158. Panel Report, Korea—Beef, supra note 157, ¶¶ 237–38. While Korea stipulated that imported and domestic beef were “like products,” it argued that the stores were regulated identically, irrespective of which type of beef they choose to sell. Id. ¶¶ 179, 621–22 The Panel focused instead on the fact that the number of stores selling domestic beef outnumbered those selling imported beef by approximately nine-to-one. No evidence was introduced that the government was responsible for the imbalance, but the Panel found this disparity “limit[ed] the possibility for consumers to compare imported and domestic products and effectively base their consumption choice on the differences in quality, characteristic and prices of products, . . . [i]nherently reduc[ing] opportunities for imported products to compete directly with domestic products.” Id. ¶ 631.
159. Id. ¶ 250 (citing Unfair Competition Prevention and Business Secret Protection Act, Act No. 6421, Feb. 3, 2001 (S. Kor.)).
160. Id. ¶ 659 (emphasis added).
Korea objected that this would be prohibitively expensive. The appellate body was not persuaded, observing that if Korea had the resources to identify the problem it must still have the resources to continue surveying the 50,000 retail outlets and butcher shops.

This circular logic—that if a country has sufficient resources to identify a violation of law, it follows that it must have the sufficient resources to enforce the law—suggests that exception XX(d) will rarely apply. Although the DSB asserts that “[t]he greater the contribution a measure makes to the objective pursued, the more likely it is to be characterized as ‘necessary,’” there is little precedent to support this avenue for a ban based on animal welfare or food safety laws.

d. Relating to the Conservation of Exhaustible Natural Resources

As with the previous exception, this exception is less than ideal for animal welfare based arguments. To claim this exception, the E.U. would need to demonstrate that: (1) farm animals are “natural resources;” (2) farm animals are exhaustible; and (3) an import ban on foods from inhumanely raised animals “relates to” the “conservation” of farm animals. Farm animals are “natural resources” under U.S.—Shrimp, but they are not “exhaustible” in the way the sea turtles in U.S.—Shrimp were exhaustible, by virtue of their “endangered” status under the Convention on International Trade in Endangered Species (CITES).

161. The U.S. offered three alternatives: labeling, record-keeping, and prosecutions and fines. Id. ¶¶ 666, 673–74. Labeling was never addressed (presumably because the restriction applied only to beef that could not be labeled), and advanced record-keeping was found to be too sophisticated to implement.


163. In an observation that appears somewhat irrelevant to the analysis, the panel criticized the measure as under-inclusive, because (1) Korea did not implement similar measures to distinguish between imported and domestic products such as pork and seafood; and (2) the beef restriction did not apply in restaurants, where 45% of imported beef was sold. Id. ¶ 168. If Korea had charged that imported beef was being fraudulently sold in restaurants as domestic beef, then the Board’s inclusion of this data would appear more relevant.


165. GATT 1947, supra note 68, at art. XX(g).

166. Brett Grosko, Just When Is It That a Unilateral Trade Ban Satisfies the GATT?: The WTO Shrimp and Shrimp Products Case, 5 ENVTL. LAW. 817, 829–30 (1999). The test for “relates to” was whether the trade limitation had a “close and genuine relationship of ends and means.” Id. Preventing unnecessary sea turtle mortality was the ends; the means was eliminating fishing methods that also ensnared turtles. Id.

167. Id. at 829.

168. Id. at 830.
Alternatively, the E.U. could assert that domestic prohibitions on industrial farming practices and a trade ban on imports produced using those practices are necessary to conserve other natural resources. The environmental costs societies incur from CAFO agriculture are well-documented, including ground and surface water pollution, deforestation of threatened ecosystems, and contributions to climate change. The preamble to the Marrakesh Agreement urges WTO members to make “optimal use of the world’s resources in accordance with the objective of sustainable development, seeking both to protect and preserve the environment,” and the E.U.’s position should be that its own laws are in pursuance of this directive.

As demonstrated in *U.S.—Gasoline*, trade barriers initiated under the guise of conserving natural resources must be supported by domestic policies. In that dispute, the appellate body rejected American import limitations on gasoline that exceeded set levels of certain pollutants. In its stinging rebuke, the appellate body harshly criticized the U.S. for awarding its domestic refineries more generous pollutant standards and compliance deadlines, while entirely disregarding foreign refineries, a clear violation of GATT Article III:4. The obvious lesson is that any E.U. trade ban offered under this exception must not beyond the E.U.’s own natural resource protections.

**CONCLUSION**

If member nations are to continue recognizing the World Trade Organization Dispute Resolution Body’s expansive—and expanding—authority over international trade disputes, the WTO must address the

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171. Id. at 28.

Clearly, the United States did not feel it feasible to require its domestic refiners to incur the physical and financial costs and burdens entailed by immediate compliance with a statutory baseline. The United States wished to give domestic refiners time to restructure their operations and adjust to the requirements in the Gasoline Rule. This may very well have constituted sound domestic policy from the viewpoint of the EPA and U.S. refiners. At the same time we are bound to note that, while the United States counted the costs for its domestic refiners of statutory baselines, there is nothing in the record to indicate that it did other than disregard that kind of consideration when it came to foreign refiners.

*Id.*
political and ideological discord that created the chasms between the farm animal welfare and food safety regulatory systems discussed in this article. In doing so, it may become the final arbiter of international agricultural animal welfare standards, whether or not it is the appropriate body for this task. At least for the near future, the E.U.’s prospects for supporting its agricultural reforms with trade restrictions against non-conforming animal food products appear to be improving, and the E.U. should continue to exercise its sovereign determination to insure the viability of its domestic food production industry.
INTRODUCTION

An important objective of the Revised Treaty of Chaguaramas Establishing the Caribbean Community (CARICOM) Including the CARICOM Single Market and Economy (the Revised Treaty) is the development of the food and agricultural sector, and a corresponding expansion in the regional trade of products within that sector among the twelve states participating in the CARICOM Single Market and Economy.
However, the Jagdeo Initiative identified agricultural health and food safety standards as a key constraint to the further development of the region’s agricultural and food processing sector. The likely validity of this assertion was recently illustrated by the Tastee Patties dispute. A shipment of patties from Jamaica was held at a port in Trinidad for several weeks on the basis that the patties did not meet Trinidadian health standards. Trinidad and Tobago authorities insisted that they needed to visit the processing facility in Jamaica in order to inspect and evaluate the standards there before an import license could be issued. The shipment was cleared only after several weeks of consultations and the completion of a favorable report by the Sanitary and Phytosanitary (SPS) Inspection Team of CARICOM.

This and similar incidents have made it clear that any expansion in regional and international trade in the food processing and agricultural sector is reliant upon “common SPS standards being accepted within the regional bloc.” There is also the consideration that, with the increase in international travel and the movement of people and cargo globally, the incidents of pests and diseases entering the Caribbean will increase.

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2. Namely, Antigua and Barbuda, Barbados, Belize, Dominica, Grenada, Guyana, Jamaica, St. Kitts and Nevis, Saint Lucia, St. Vincent and the Grenadines, Suriname, and Trinidad and Tobago. The three other Caribbean states that are members of CARICOM—The Bahamas, Haiti, and Montserrat—are not participants in the CSME. See The Importance of, and State of Implementation of The CSME, CARIBBEAN COMMUNITY (CARICOM) SECRETARIAT (Aug. 25–26, 2003), http://www.caricom.org/jsp/speeches/csme_importanceandimplementation_blake.jsp (describing the importance, potential, and state of implementation of the CSME) [hereinafter Caribbean Community (CARICOM) Secretariat].

3. This is the name that was given to the presentation on agriculture and fisheries by President Bharrat Jagdeo of Guyana, made to the Heads of Government at their Twenty-Fifth Conference held in Grenada from July 4–7, 2004.


5. See id. (“[T]he issue of standards has been central to the use of sanitary and phytosanitary (SPS) measures to block or delay the entry of Jamaican meat and meat products in Trinidad.”).

6. Id.

7. See Tastee Gets Full Clearance from Caricom, JAMAICA OBSERVER, May 19, 2010, http://www.jamaicaobserver.com/Tastee-gets-full-clearance-from-Caricom 7626812 (reporting that at a meeting on February 8 and 9, 2010 and acting upon the recommendations of the CARICOM SPS Inspection Team, which visited the site in Jamaica, CARICOM decided to permit Tastee to export its patties to all CARICOM Member States).

8. Tastee Patties, supra note 4.

9. See, e.g., Press Release, Caribbean Cnty. (CARICOM) Secretariat, Remarks by His Excellency Edwin W. Carrington, Secretary-General, Caribbean Community (CARICOM) on the Occasion of the Inauguration of the Caribbean Agricultural Health and Food Safety Agency (CAHFSA),
Climate change may also enhance the ability of vermin to migrate and establish throughout the region. Satisfactory SPS standards are required, therefore, for regional and international trade.

The Agreement Establishing the Caribbean Agricultural Health and Food Safety Agency (the CAHFSA Agreement), which attempts to implement common SPS standards, was originally adopted by the Member States of CARICOM in Roseau, Dominica, on March 12, 2010 but has now been replaced by the CAHFSA Agreement adopted on February 25, 2011 at St. George’s, Grenada. Among the Caribbean Agricultural Health and Food Safety Agency’s (CAHFSA or the Agency) primary objectives is the provision of regional and national support to the community in the establishment and management of National Agricultural Health and Food Safety Systems (NAHFSS) as they relate to SPS measures promulgated by the World Trade Organization (WTO). CAHFSA is specifically intended to “execute on behalf of those countries such actions and activities that can be more effectively and efficiently executed through a regional mechanism” than by unilateral action.

There are several perspectives from which to consider the likelihood that the CAHFSA Agreement will achieve its objectives. In the first place, there is the question of internal coherence. The focus here is two-fold: (1) whether the objectives as set out in the Agreement are capable of being achieved on the basis of the prescribed institutional and administrative arrangements; and (2) whether the nature of the relationship between CAHFSA and other regional institutions that are involved in standard-setting presents a platform for collaborative endeavors in adopting appropriate SPS measures. In the latter regard, the CARICOM Regional Organization for Standards and Quality (CROSQ) and the Caribbean Agricultural Research and Development Institute (CARDI) are among the most pertinent. Here, internal coherence considers the broader question of the rationalization of the institutional arrangements within CARICOM.

A second consideration for the likelihood that the CAHFSA Agreement may or may not achieve its objectives is the existence of sufficient legislative and regulatory authority to guarantee national compliance with
regional and global standards so as to facilitate international trade. The Revised Treaty requires the establishment of “an effective regime of sanitary and phytosanitary measures”\textsuperscript{14} and the harmonization of “laws and administrative practices in respect of . . . sanitary and phytosanitary measures.”\textsuperscript{15} WTO commitments make similar requirements of Member States to apply “international standards, guidelines, and recommendations” in the conduct of trade in agricultural products.\textsuperscript{16} These regional and global obligations are recognized in the preamble to the CAHFSA.\textsuperscript{17} A legitimate question is, therefore, whether the institutional and administrative arrangements, together with the legislative nature of the decision-making processes prescribed for the Agency, are sufficient to implement or otherwise satisfy these international legal obligations.

The third and final issue of significance to the likely success of the CAHFSA Agreement to be considered relates to the regime for the settlement of disputes. Contracting Parties to the CAHFSA Agreement are obliged, ultimately, to submit differences for final decision by an arbitral tribunal.\textsuperscript{18} This provision, which is by no means uncommon in regional agreements that are subsidiary to the Revised Treaty,\textsuperscript{19} raises the question of the role of the Caribbean Court of Justice (CCJ or the Court), the primary function at the regional level of which is to exercise compulsory and exclusive jurisdiction to hear and determine disputes concerning the interpretation and application of the Revised Treaty.\textsuperscript{20} Therefore, whether and how the Court may exert jurisdiction over CAHFSA raises questions of fundamental importance to the regional integration movement.

I. THE PURPOSE OF SANITARY AND PHYTOSANITARY MEASURES

The central concern of the CAHFSA Agreement is with the adoption of appropriate SPS measures which, reflecting the definition used in the WTO

\textsuperscript{14} Revised Treaty, supra note 1, art. 57, ¶ 1(k).
\textsuperscript{15} Id. art. 74, ¶ 2(e).
\textsuperscript{17} CAHFSA Agreement, supra note 11, pmbl.
\textsuperscript{18} Id. art. 20, ¶ 1.
\textsuperscript{19} See, e.g., Agreement Establishing the Caribbean Environmental Health Institute, art. 17, ¶ 1, opened for signature July 10, 1980, 2247 U.N.T.S. 275 (“[D]ispute[s] shall be submitted to arbitration.”).
SPS Agreement, are said to include all relevant laws, decrees, regulations, requirements, and procedures applied to one or more of several objectives. These objectives are:

(a) Protection of animal or plant life or health within the territory of the Contracting Parties from risks arising from the entry, establishment or spread of pests, diseases, disease-carrying organisms or disease-causing organisms;

(b) Protection of human or animal life or health within the territory of the Contracting Parties from risks arising from additives, contaminants, toxins or disease-causing organisms in foods, beverages or feedstuffs;

(c) Protection of human life or health within the territory of the Contracting Parties from risks arising from diseases carried by animals, plants or products thereof, or from the entry, establishment or spread of pests; or

(d) Prevention or limitation of other damage within the territory of the Contracting Parties from the entry, establishment or spread of pests.

II. TRANSPARENCY

The CAHFSA of 2011 contains a new Article on the important issue of transparency, which attempts to ensure compliance with the obligations on transparency in keeping with the Revised Treaty and the WTO Agreement on the Application of Sanitary and Phytosanitary Measures. Accordingly, Article VIII provides as follows:

21. SPS Agreement, supra note 16, annex A, ¶ 1. The WTO SPS Agreement states that sanitary or phytosanitary measures:

[Include all relevant laws, decrees, regulations, requirements and procedures including, inter alia, end product criteria; processes and production methods; testing, inspection, certification and approval procedures; quarantine treatments including relevant requirements associated with the transport of animals or plants, or with the materials necessary for their survival during transport; provisions on relevant statistical methods, sampling procedures and methods of risk assessment; and packaging and labeling requirements directly related to food safety.

Id.

22. CAHFSA Agreement, supra note 11, art 1.

23. Id.
Members shall comply with the requirements of transparency as mandated by the Community and the SPS Agreement including –

(a) the prompt publication of information on the sanitary and phytosanitary measures of members and the prompt notification of changes in these measures; and

(b) the allowance of a reasonable interval, except in urgent circumstances, between the publication of a sanitary or phytosanitary regulation and its entry into force in order to allow time for producers in exporting Members to adapt their products and methods of production in the requirements of the importing Member.

III. INSTITUTIONAL AND ADMINISTRATIVE ARRANGEMENTS

The institutional and administrative architecture of the CAHFSA Agreement is designed to ensure the facilitation of its objectives and purposes. Article II establishes CAHFSA as having the membership, objectives, functions, and composition set out in the Agreement. It is specifically provided that CAHFSA is established as an institution of CARICOM pursuant to Article 21 of the Revised Treaty.

A. Membership

Full membership of CAHFSA is open to all Member States of the Caribbean Community. This would appear to allow for membership by Haiti, Montserrat, and The Bahamas which are all members of the Community but which are not presently participants in the CSME. It is not altogether clear whether this was unintended since participation in the CAHFSA Agreement allows for financial and technical contributions to be

24. Id. art. 2, ¶ 1.
25. Id. art. 2, ¶ 2. CARICOM has deferred for the time being consideration of whether CAHFSA should be designated as the Caribbean Plant Protection Commission (“CPPC”); one difficulty is that the membership of CPPC is much wider than CARICOM since it includes the United States and some South and Latin American countries.
26. Id. art. 4, ¶ 1. The members of CARICOM are listed in Article 3(1) of the Revised Treaty as: Antigua and Barbuda, The Bahamas, Barbados, Belize, Dominica, Grenada, Guyana, Jamaica, Montserrat, St. Kitts and Nevis, Saint Lucia, St. Vincent and the Grenadines, Suriname, and Trinidad and Tobago. Revised Treaty, supra note 1, art. 3(1).
27. See Caribbean Community (CARICOM) Secretariat, supra note 2.
made by the non-CSME CARICOM Member States while benefiting from
technical advice and assistance with regard to their international trade.28
Similar discontinuities are evident in other CARICOM agreements.29

Associate membership of CAHFSA is open to Associate Members of
the Community,30 that is, any Caribbean state or territory admitted by the
Conference of Heads of Government of the Community to associate
membership of the Community.31 Associate members have wide rights of
participation in the work of CAHFSA contingent upon compliance with
their financial obligations.32

The original CAHFSA Agreement made provision for a third category
of membership. The class of “Affiliated Members,”33 which does not exist
in the Revised Treaty,34 was open to States and Territories of the Caribbean
which are not Members or Associate Members of the Community provided
they were so designated by the ministerial Council for Trade and Economic
Development.35 In this way, Caribbean states and territories not otherwise
associated with CARICOM could nevertheless have participated in the
work of CAHFSA provided they met their financial obligations to the
Agency. However, this category of membership was abolished in the
current CAHFSA in the interest of consistency with the scheme of the
Revised Treaty.36 The participation of third parties must now occur through
the Technical Advisory Committees.

28. See CAHFSA Agreement, supra note 11, art. 18, ¶ 1 (stating that a source of CAHFSA
revenue derives from Members who are then able to benefit from the objectives to be carried out in
Article 3).
29. See, e.g., CCJ Agreement, supra note 20 at art. II (allowing other, non-Member Caribbean
countries to become a Party to the agreement, subject to invitation by the Conference).
30. CAHFSA Agreement, supra note 11, art. 4, ¶ 2.
31. See Revised Treaty, supra note 1, art. 231; see also CARICOM Member States and
Associate Members, CARIBBEAN COMMUNITY (CARICOM) SECRETARIAT,
http://www.caricom.org/jsp/community/member_states.jsp?menu=community (noting when Associate
Members joined CARICOM: Anguilla (July 4, 1999), Bermuda (July 2, 2003), British Virgin Islands
(July 2, 1991), Cayman Islands (May 15 2002), and Turks and Caicos Islands (July 2, 1991)) (last
visited Oct. 29, 2010).
32. CAHFSA Agreement, supra note 11, art. 18.
33. Id. art. 1, art. 4, ¶ 3.
34. See Revised Treaty, supra note 1, art. 12, ¶ 10 (reporting that the organs, bodies, and
institutions of the Community do recognize “observers,” but it is unclear whether observer status in
CARICOM is equated with Affiliated Membership in CAHFSA).
35. CAHFSA Agreement, supra note 11, art. 4, ¶ 3. Article 1 defines “Affiliated Member” as
“any Caribbean State or Territory admitted to affiliate membership of CAHFSA pursuant to Article IV
of this Agreement.” Id. art 1.
36. Id. art. 4, ¶ 1.
CAHFSA consists of a Board, a Secretariat, and Technical Advisory Committees (“TACs”). Under the current CAHFSA, the Board of Directors comprises only Members of CARICOM and must convene an annual general meeting at the headquarters of CAHFSA or any other venue determined by the Board. The Board is made up of one representative from each Member representing the specialized areas of focus for CAHFSA, “including animal and veterinary public health, plant health, food safety and quality and other relevant fields such as risk management and laboratory services.” The current Agreement abolishes membership from the private sector. Associate Members have the right to participate in the meetings of the Board without the right to vote. The Secretary General of CARICOM is granted observer status on the Board. Only Members have the right to vote.

The functions of the Board of Directors are detailed in Article X. An overriding obligation is to report annually to the Council for Trade and Economic Development (“COTED”), which is the body authorized to determine the establishment or adoption of regional SPS measures, strategies, and standards. Subject to this requirement, the Board has a multiplicity of advisory and executive or regulatory functions. Among the primary advisory functions is to advise COTED on the making of recommendations on the conduct of regional and international risk assessments for the importation of plants, animals, and the products thereof. The Board should also inform COTED of new and emerging issues which pose a threat to the agricultural health and food safety systems in the Community. The Board may make recommendations to COTED on the budget as well as the strategic plan and work program of the Agency.

37. Id. art. 6.
38. Id. art. 10.
39. Id. art. 9, ¶ 1. The CAHFSA Agreement lists these five institutions with related functions as: CARIF; the Caribbean Environmental Health Institute (“CEHI”); Caribbean Regional Fisheries Mechanism (“CRFM”); CROSQ; and one person jointly representing the University of the West Indies, the University of Guyana, and Anton De Kom University of Suriname. Id.
40. Id.
41. Id. art. 9, ¶ 3.
42. Id. art. 10, ¶ 3.
43. Id. art. 10.
44. Id. art. 10, ¶ 1.
45. Revised Treaty, supra note 1, art. 12.
46. CAHFSA Agreement, supra note 11, art. 10, ¶ 3.
47. Id. art. 10, ¶ 3(k).
48. Id. art. 10, ¶ 3(i).
49. Id. ¶ 3(j).
The executive functions include the appointment of the Chief Executive Officer; the exercise of power over appointments, termination of appointments, and approval of staff regulations; and the approval of organizations with which CAHFSA may establish and maintain functional cooperation.\textsuperscript{50} The Board is also competent to establish guidelines and standards for monitoring and evaluating CAHFSA regarding its targets, objectives, and policies, as well as to promote the use of international and regional SPS standards, guidelines, and recommendations.\textsuperscript{51} The executive or regulatory functions are in relation to the Agency rather than the Member States. In performance of its functions, the Board may seek the advice of a TAC.\textsuperscript{52}

The TAC consists of nominees of Contracting Parties and other persons drawn from public and private sector entities.\textsuperscript{53} A wide diversity of institutions may be represented.\textsuperscript{54} The TAC meets “as often as necessary to perform its functions.”\textsuperscript{55} Its decisions are taken by a simple majority and constitute recommendations to the Chief Executive Officer (“CEO”).\textsuperscript{56} The functions of the TAC are to provide, \textit{inter alia}, advice, comments and reviews on:

(a) the development, adoption, adaptation or harmonisation of sanitary and phytosanitary measures and regional guidelines, measures, positions and standards regarding new and emerging sanitary and phytosanitary issues;

(b) regional training programmes with respect to strengthening the capacity and capability for agricultural health and food safety systems as they relate to sanitary and phytosanitary issues; and

(c) any other function as may be requested by the Secretariat or the Board.\textsuperscript{57}

\textsuperscript{50} \textit{Id.} art. 10, ¶ (3)(a), (b), (c), (h).
\textsuperscript{51} \textit{Id.} art. 10, ¶ (3)(g).
\textsuperscript{52} \textit{Id.} art. 10, ¶ 3. Note that the article appears to have two Paras. 3.
\textsuperscript{53} \textit{Id.} art. 11, ¶ 1. Note that the Agreement appears to have two Article XI.
\textsuperscript{54} \textit{Id.} The CAHFSA Agreement specifies that Members TACs “shall be selected from the nominees of Contracting Parties, persons drawn from the public and private sectors, national, regional and international organizations, Community Institutions and Associate Institutions.” \textit{Id.} art. 11 ¶ 3.
\textsuperscript{55} \textit{Id.} art. 13, ¶ 1.
\textsuperscript{56} \textit{Id.} art. 13, ¶ 2.
\textsuperscript{57} \textit{Id.} art. 12.
The Secretariat is appointed by the Board and consists of a CEO; a Food Safety Specialist; an Animal Health Specialist; a Plant Health Specialist; and “any other technical, professional or ancillary staff as may be necessary including accounting and secretarial personnel.”\(^{58}\) In appointing the professional staff, due consideration must be given to “equitable geographical representation of the membership of CAHFSA”;\(^ {59}\) but in performing their functions the staff “shall neither seek nor receive instructions from any source external to CAHFSA.”\(^ {60}\)

The functions of the CEO are spelled out in detail in Article XV. Subject to the directions of the Board, the CEO performs the following functions among others:

(a) liaise with the relevant national, regional and international organisations and private sector bodies to ensure successful management and operations of CAHFSA;

(b) liaise with the Technical Advisory Committees and other agencies, organisations, and national contact points in the planning and development of regional programmes, positions, representations and recommendations on agricultural health and food safety;

(c) liaise with the relevant Technical Advisory Committee to ensure integrity of recommendations to the Board;

(d) make recommendations for appointment of other staff with due consideration to qualification and experience in the critical areas of animal and plant health, food safety and project management;

(e) manage the daily operations of CAHFSA;

(f) ensure good accounting practices in the Secretariat;

(g) submit to the Board an annual report, which includes audited financial statements;

\(^{58}\) Id. art. 14, ¶ 1.

\(^{59}\) Id. art. 14, ¶ 4.

\(^{60}\) Id. art. 14, ¶ 5.
(h) prepare the annual budget and work programme of CAHFSA for submission to the Board; and

(i) undertake any other function as may be determined by the Board.

2. The Chief Executive Officer may establish committees as may be necessary to recommend protocols, guidelines, measures, standards and regulations to the Board. 61

These institutional and administrative arrangements are the bare essentials required for the organization and vitality of CAHFSA. With the exception of competence in relation to the power to prescribe and ensure implementation of relevant standards, the arrangements would appear to be adequate for the purposes of the Agency. The legal personality of CAHFSA is recognized as including the full capacity to acquire and dispose of property, contract, and institute legal proceedings. 62 The funding consists primarily of donations from Members, Associate Members, and Affiliate Members; other donations; and “fees derived from the conduct of consultancy, investigations, training courses and other services performed by CAHFSA.”63 “Privileges and immunities to be recognized and granted by Contracting Parties . . . [are to] be set out in a Protocol to the Agreement.”64

IV. INTEGRATION INTO INSTITUTIONAL LANDSCAPE

The Agreement takes particular care to integrate CAHFSA into the multitude of institutions that populate the CARICOM landscape. The Board of Directors is dominated by representatives from institutions within CARICOM having functions to perform in the SPS field. The Board is specifically required to collaborate with established bodies in specific areas mandated by COTED including the Committee of Caribbean Plant Health Directors (CCPHD), Committee of CARICOM Chief Veterinary Officers (CCCVO), and the Caribbean Regional Fisheries Mechanism (CRFM). 65

61. Id. art. 15.
62. Id. art. 5.
63. Id. art. 18, ¶ 1.
64. Id. art. 19, ¶ 1.
65. Id. art. 11, ¶ 4.
Several of these institutions, as well as other regional bodies, must be represented on the TACs.66

Another methodology by which institutional integration is ensured relates to the functions of the Agency. In some instances, it is expressly provided that CAHFSA is required to conduct its affairs in partnership with regional and international organizations in matters of agricultural health and safety67 and to coordinate the integration of technical support to stakeholders by relevant regional and international organizations.68 Even where the requirement is not articulated, the nature of the mandate is such that it can only be achieved by inter-agency collaboration. Such mandates include the development of regional standards, measures and guidelines; facilitation of harmonized technical procedures; the monitoring and evaluation of regional agricultural health and food safety programs; and the encouragement of a regional consensus on SPS matters.69

In short, both formal and systemic linkages have been established between the new agency and related CARICOM institutions. Financial constraints and the dearth of human resources are also likely to exert practical pressures for close collaboration and burden sharing. Further work is being undertaken in preparation for the revamping of the relationship between CARICOM and its institutions, which is expected to eventually mature into a convention binding the Community and its institutions.

V. ADOPTION OF SPS STANDARDS THAT PROTECT HEALTH AND FACILITATE TRADE

International and regional trade laws establish obligations in relation to the adoption of SPS standards which protect public health while facilitating international trade.70 WTO Member States are obliged to apply international standards, guidelines, and recommendations when conducting international trade in agricultural products.71 The Member States administer the WTO Agreement on the Application of Sanitary and Phytosanitary Measures, which is concerned with and sets constraints on standards that safeguard food safety (such as bacterial contamination, pesticides, inspection, and

66. Id. art. 11.
67. Id. art. 3, ¶ 2(a).
68. Id. art. 3, ¶ 2(f).
69. Id. art. 3, ¶ 2(e).
70. See, e.g., GEOFFREY S. BECKER, CONG. RESEARCH SERV., RL 33472, SANITARY AND PHYTOSANITARY (SPS) CONCERNS IN AGRICULTURAL TRADE 16–17 (2006) (listing other existing international trade agreements with SPS provisions).
labeling), as well as animal and plant health (for example, phytosanitary). Member States retain the right to take SPS measures that are necessary for this purpose, but these measures must not be used for protectionist reasons. Where scientific evidence is not available, provisional SPS measures are to be taken on the basis of available information, always bearing in mind the general requirement to implement international standards and not to “arbitrarily or unjustifiably discriminate between Member [States] where identical or similar conditions prevail.”

At the regional level, the Revised Treaty requires the establishment of “an effective regime of sanitary and phytosanitary measures” and the harmonization of “laws and administrative practices in respect of . . . sanitary and phytosanitary measures.” Even before the formal adoption of the CAHFSA Agreement, CARICOM had established certain basic bodies to carry out SPS functions. The CARICOM Sanitary and Phytosanitary Inspection Team did valuable work in the Tastee Patties dispute, as indicated earlier.

CAHFSA is expected to develop technical measures and protocols that complement and build upon existing Caribbean programs in animal health, plant health, and food safety so as to achieve relevant SPS certification. The Agency works in support of the development and use of regional and international SPS standards. Particular focus is to be placed on the following critical functional areas:

(a) promotion of the development and use of regional and international sanitary and phytosanitary measures, standards and guidelines;

(b) strengthening of the legislative framework with respect to sanitary and phytosanitary measures;

72. SPS Agreement, supra note 16, art. 2, ¶ 1.
73. Id. art. 2, ¶ 3.
74. Id. art. 2, ¶¶ 2, 3.
75. Revised Treaty, supra note 1, art. 57, ¶ 1(k).
76. Id. art. 74, ¶ 2(e).
77. See Revised Treaty, supra note 1, art. 57(1)(k) (“[The] Community shall, through competent Community Organs and Bodies, promote and support . . . the establishment of an effective regime of sanitary and phytosanitary measures.”).
78. See Tastee Gets Full Clearance from Caricom, supra note 8.
79. See CAHFSA Inauguration Remarks, supra note 9 (describing the importance of technical measures and protocols for trade in the Caribbean).
80. CAHFSA Agreement, supra note 11, art. 7.
(c) harmonisation of technical procedures in relation to matters such as quarantine systems and their protocols, surveillance, laboratory analyses, safe management and use of agrochemicals and other relevant processes and procedures in collaboration with other existing organisations in the Community;

(d) provision of a coordination mechanism for sanitary and phytosanitary related issues;

(e) monitoring and evaluation of national programmes in relation to animal health, plant health, and food safety;

(f) development of protocols for the conduct of regional and international risk assessments, including site visits and other investigations;

(g) coordination and support of the conduct of risk assessments including site visits;

(h) provision of support for the strengthening of the regional and national capacity agricultural health and food safety systems in partnership with all stakeholders;

(i) provision of technical support for the strengthening of agricultural health and food safety systems taking into consideration the role of other agencies and institutions;

(j) establishing mechanisms to assist Contracting Parties in complying with transparency obligations;

(k) provision of support for the strengthening of laboratory services;

(l) harmonization of regional strategies for emergencies and emerging and related issues;

(m) informing COTED of new and emerging issues which pose a threat to the agricultural health and food safety systems in the Community;
(n) development and maintenance of regional and national databases taking into consideration the roles of other agencies and institutions in existing databases;

(o) provision of services as a clearing house for specific information on agricultural health and food safety;

(p) establishment of partnerships with existing regional and international organizations in matters of agricultural health and food safety;

(q) complementing and building upon existing programmes in animal and plant health and food safety in support of national agricultural health and food safety systems in Contracting Parties;

(r) mobilization of resources including the sourcing, utilization and allocation of funding and other development assistance to support the objectives and functions of CAHFSA; and

(s) promotion of the use of international and regional measures, standards and guidelines for sanitary and phytosanitary measures as obliged under the SPS Agreement.81

The reference to the development of “risk assessment” protocols deserves further elaboration given the likely costs involved and its centrality to the SPS regime as illustrated in the European Communities—Measures Concerning Meat and Meat Products (Hormones) case.82 “Risk assessment” is defined as the evaluation of the likelihood of entry, establishment or spread of a pest or disease within the territory of an importing Contracting Party according to the sanitary or phytosanitary measures which might be applied, and of the associated potential biological and economic consequences; or the evaluation of

81. Id.
82. See Appellate Body Report, EC Measures Concerning Meat and Meat Products (Hormones), ¶ 208, WT/DS26/AB/R, WT/DS48/AB/R (Jan. 16, 1998) (holding that the European Communities failed to conduct risk analysis and violated obligations under SPS Agreement, supra note 16, art. 5); see also Appellate Body Report, Japan—Measures Affecting the Importation of Apples, ¶ 216, WT/DS245/AB/R (Nov. 26, 2003) (holding that Japan did not satisfy the risk assessment requirement as defined by the SPS Agreement, supra note 16, art. 5).
the potential for adverse effects on human or animal health arising from the presence of additives, contaminants, toxins or disease-causing organisms in food, beverages or feedstuffs.83

These are all important SPS functions that involve adopting measures that protect public health while devising arrangements to reduce the use of SPS measures as non-tariff barriers, including undue administrative delays in clearance of perishable agricultural products. However, there is a central weakness in the arrangement. The CAHFSA Agreement merely creates the framework within which the standards are to be developed.84 The nature of the drafting places considerable discretion on the pace and urgency with which the standards are established and makes virtually no provision for their implementation and enforcement.85 There appears to be very little scope for authoritative decision-making by CAHFS, which must rely on COTED to make SPS rules that are binding on Member States.86 Under the Revised Treaty, COTED has power to make decisions which are binding on Member States of CARICOM.87 The Council has specific legislative power in relation to SPS measures that are prescribed in the CAHFSA Agreement: SPS measures recommended by the Board of CAHSA and approved by COTED become binding and Contracting Parties are required to “adopt appropriate legal and administrative arrangements to give effect to the decision within their respective jurisdictions.”88

VI. DISPUTE RESOLUTION

The provision on dispute settlement focuses on the use of arbitration. Any difference between the Contracting Parties “which is not settled by negotiation or other agreed mode of settlement” shall be referred “for final decision” to an arbitral tribunal “at the instance of any party.”89 The composition of the arbitration tribunal is reliant upon the appointment of

83. SPS Agreement, supra note 16, art. 1.
84. See CAHFSA Agreement, supra note 11, art. 3 (stating that CAHFSA will provide support in establishing SPS standards, in addition to facilitating the synchronization of technical procedures and providing a framework for monitoring of programs and identifying financial needs).
85. Note that much of the objectives and guidelines laid out within the CAHFSA Agreement are largely discretionary in regards to extent of performance and place few affirmative duties on signing parties. See generally CAHFSA Agreement, supra note 11.
86. See id. arts. 7, 10 (delineating CAHFSA’s advisory role to COTED, while Article 16 states that any recommendation must be approved by COTED).
87. Revised Treaty, supra note 1, arts. 15, 29.
88. CAHFSA Agreement, supra note 11, art. 16.
89. Id. art. 20, ¶ 1.
one arbitrator by each of the disputing parties, with the possibility of recourse to the Secretary-General of CARICOM to appoint an arbitrator.\footnote{Id. art. 20, ¶¶ 1, 2, 3.} The arbitrators thus appointed are responsible for appointing a third arbitrator who shall be the Chairman. The arbitration tribunal establishes its own rules of procedure.\footnote{Id. art. 20, ¶ 5.}

Whether disputes may be adjudicated by the CCJ is open to question. There is nothing in the CAHFSA Agreement that prevents the parties from agreeing to refer the dispute to the Court as an “agreed mode of settlement”\footnote{Id. art. 20, ¶ 1.} but according to one interpretation the CCJ has jurisdiction only with respect to the interpretation and application of the Revised Treaty. Where the Court exercises that jurisdiction and it becomes necessary to pronounce upon subsidiary agreements, such as the CAHFSA Agreement, such pronouncement appears permissible either pursuant to the generic nature of the “compulsory . . . [and] original jurisdiction” to interpret and apply the Revised Treaty, or to the general obligation of the Court to “apply such rules of international law as may be applicable” to the dispute.\footnote{Revised Treaty, supra note 1, arts. 216, ¶ 1, 217, ¶ 1. It should be noted that CAHFSA itself appears to recognize this jurisdiction in that its provision on arbitration relate to differences arising out of the interpretation or application of the Agreement, “which is not related to the interpretation or application of the [Revised] Treaty.” Id. art. 20 ¶ 1.}

The converse case of taking jurisdiction directly over disputes arising under CAHFSA raises greater difficulty. Not only is there the problem of the apparent restriction of the CCJ’s competence to adjudicate on matters related to the Revised Treaty, there is also the consideration that in some of the subsidiary CARICOM agreements, recourse by the Contracting Parties to the CCJ seems either to be excluded\footnote{E.g., id.; see also Agreement for the Establishment of the Caribbean Meteorological Organisation, art. 23, opened for signature Oct. 19, 1973, 947 U.N.T.S. 543 (requiring arbitration as the only mode of dispute settlement); Agreement Establishing the Caribbean Environmental Health Institute, supra note 19, art. 17, ¶ 1 (“[D]ispute[s] shall be submitted to arbitration.”); Agreement Establishing the Caribbean Agricultural Research and Development Institute art. 16, ¶ 1, opened for signature Dec. 5, 1974, 2285 U.N.T.S. 607 (“[D]isputes shall be submitted to arbitration.”).} or not contemplated.\footnote{See, e.g., Agreement Establishing the Caribbean Subcentre of the Latin American Centre for Development Administration, Jan 1, 1980–Aug. 19, 1981, available at http://www.caricad.net/UserFiles/File/headquartersagmt.pdf (lacking any provisions for modes of dispute settlement); see also Agreement Establishing the CARICOM Regional Organisation for Standards and Quality, arts. 4, ¶ 2(d), 2(g), 7, Feb. 4, 2002, 2324 U.N.T.S. 413 (establishing CROSQ duty to “provide guidance to Community Organs and Bodies regarding . . . disputes settlement.”).} The CAHFSA Agreement is one of only two agreements establishing CARICOM institutions that leave open-ended the matter of a referral to the
The matter is complicated by *Johnson v. CARICAD* in which the Court affirmed that it had no jurisdiction over institutions of CARICOM and therefore, *a fortiori*, over associate institutions of CARICOM. Hopefully, the Court will be afforded another opportunity to clarify its jurisdiction in relation to this matter.

**CONCLUSION**

The establishment and operation of CAHFSA is critical to the development of effective SPS standards. The development of technical standards and national capacities, as well as the harmonization of relevant laws and administrative practices and procedures, should facilitate Community trade in food and agricultural products. Indeed, given the express linkages to the adoption of international standards evolving through the WTO, CAHFSA should increase the overall competitiveness of Caribbean products generally and thus increase the region’s share of the global trade in agricultural products. Thereby, an incentive is provided for Caribbean states who are not members of the CSME to nonetheless participate in the work of the Agency. The provision for inter-institutional collaboration is very evident in the organization of CAHFSA and is undoubtedly one of the major achievements of the Agreement.

Among the most intractable problems that remain are those that have to do with the powers of the Agency and the Agency’s integration into the dispute settlement regime of the region. There is no supranational power to develop or implement SPS standards. Measures agreed to by CAHFSA become binding through the traditional route of adoption by ministerial council and are implemented by the individual state apparatus. This route has proved entirely unreliable and inadequate in light of the requirements of modern Community building and has been the subject of aging reform efforts at overhauling the process by which community law is

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96. The other is the Agreement Establishing the Caribbean Disaster Emergency Response Agency, art. 30, opened for signature Feb. 26, 1991, 2256 U.N.T.S. 53, which provides: “In the absence of a contrary agreement between the parties concerned, all disputes arising from or in connection with the interpretation or application of this Agreement shall be settled by the Council.” (emphasis added).


98. Id. at [14]–[15].

99. See Revised Treaty, supra note 1, arts. 9, 15, 29 (stating that Member States are responsible for carrying out obligations of the Treaty in Article 9, that COTED consists of ministers from the Member States and what the duties of COTED are in Article 15, and finally that ministerial councils have certain procedural obligations in Article 29).
implemented. A critical concern is whether Member States are sufficiently committed to the process given that the region’s agricultural sector might not be vibrant enough to create significant lobbying pressure or provide the required economic resources. There is considerable doubt as to whether the sector generates sufficient resources to make cost recovery possible. In addition to the regional costs, the burden of implementation falls to the national institutions thus making additional demands on scarce resources. A leap of faith may be required, that is, a financial investment in the belief that, benefits to public health apart, a vibrant and effective CAHFSA will lead to greater competitiveness and increased regional and international trade, thus justifying the initial outlay of additional resources at the regional and national levels.


101. Id. at 12.
## TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction</td>
<td>276</td>
</tr>
<tr>
<td>I. The Growth of the Current Clean Water Act and the Marriage</td>
<td></td>
</tr>
<tr>
<td>Between the Act and Concentrated Animal Feeding Operations,</td>
<td></td>
</tr>
<tr>
<td>1972–2001</td>
<td>282</td>
</tr>
<tr>
<td>A. The 1972 Clean Water Act</td>
<td>284</td>
</tr>
<tr>
<td>B. The Role of “CAFOs” as “Point Sources” Under the Clean Water Act</td>
<td>286</td>
</tr>
<tr>
<td>C. The First National Pollution Discharge Elimination System Permit</td>
<td>288</td>
</tr>
<tr>
<td>Regulations and Effluent Limitation Guidelines and Standards for</td>
<td></td>
</tr>
<tr>
<td>Concentrated Animal Feeding Operations: 1974 and 1976</td>
<td></td>
</tr>
<tr>
<td>D. The 1989 Natural Resources Defense Council Challenge</td>
<td>292</td>
</tr>
<tr>
<td>II. A Regulatory Sea Change: CAFOs’ Notoriety Catches Up with Them</td>
<td>292</td>
</tr>
<tr>
<td>A. Changed Perceptions and the 2001 Proposed Rule: Prioritization</td>
<td>293</td>
</tr>
<tr>
<td>and the Idea of “Co-Permitting”</td>
<td></td>
</tr>
<tr>
<td>B. The 2003 National Pollution Discharge Elimination System Permit</td>
<td>297</td>
</tr>
<tr>
<td>Regulation and Effluent Limitation Guidelines and Standards for</td>
<td></td>
</tr>
<tr>
<td>Concentrated Animal Feeding Operations</td>
<td></td>
</tr>
<tr>
<td>II. The Waterkeeper Decision</td>
<td>304</td>
</tr>
<tr>
<td>A. Challenges to the Permitting Scheme</td>
<td>305</td>
</tr>
</tbody>
</table>

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B. Challenges to Public Participation and the Effluent Limitation Guidelines ................................................................. 307

IV. The Design and Destiny of the 2008 Revised National Pollution Discharge Elimination System Permit Regulation and Effluent Limitations Guidelines for Concentrated Animal Feeding Operations .......................................................... 312

A. The Design of the 2008 Revised National Pollution Discharge Elimination System Permit Regulation and Effluent Limitations Guidelines for Concentrated Animal Feeding Operations .................. 312

B. The Current Posture of the 2008 Rule ...................................................... 323

Conclusion ................................................................................................. 325

INTRODUCTION

Imagine a city as big as New York suddenly grafted onto North Carolina’s Coastal Plain. Double it. Now imagine that this city has no sewage treatment plants. All the waste from 15 million inhabitants are simply flushed into open pits and sprayed onto fields. Turn those humans into hogs, and you don’t have to imagine at all. It’s already here. A vast city of swine has risen practically overnight in the counties east of Interstate 95. It’s a megalopolis of 7 million animals that live in metal confinement barns and produce two to four times as much waste, per hog, as the average human.1

Concentrated or confined animal feeding operations (CAFOs), industrialized animal feeding operations, factory farms, and animal factories are just a few of the terms used to describe the ever-expanding industry that produces animals, meat, and animal products for consumption and use.2 The industry evolved from a compelling economic model, the


2. U.S. GOV’T ACCOUNTABILITY OFFICE, GAO-08-944, CONCENTRATED ANIMAL FEEDING OPERATION: EPA NEEDS MORE INFORMATION AND A CLEARLY DEFINED STRATEGY TO PROTECT AIR AND WATER QUALITY FROM POLLUTANTS OF CONCERN 1, 4–5 (2008), available at http://www.gao.gov/new.items/d08944.pdf [hereinafter GAO-08-944] ("No federal agency collects accurate and consistent data on the number, size, and location of CAFOs. However, according to USDA officials, the data USDA collects for large farms . . . can serve as a proxy in estimating trends in CAFOs nationwide from 1982 through 2002. Using these data, we found that the number of large farms that raise animals has increased 234 percent, from about 3,600 in 1982 to almost 12,000 in 2002. We found that the number of animals raised on these farms had also increased, but the rate of increase varied greatly by animal type. For example, the average number of hogs raised on large farms increased by 37..."
mechanization and eventual vertical integration of production\(^3\) such that a larger number of animals could be grown as quickly as possible in a confined physical location.\(^4\) Through this model, farmers no longer have to worry about shepherding their animals against the outside environment, about presumptively wasting animal growth and output energy through movement, or about having the land mass necessary to maintain similar animal numbers through a traditionally pasture-based approach. As such,

percent, from about 3,400 in 1982 to nearly 4,600 in 2002. In contrast, during the same time period, the average number of broiler chickens raised on large farms only increased by about 3 percent, from approximately 155,000 to nearly 160,000. Furthermore, almost half of the livestock and poultry raised in the United States in 2002, about 43 percent, were raised on large [CAFO] farms.”); LEONARD S. BULL ET AL., PEW COMM’N ON INDUS. FARM ANIMAL PROD., RECENT CHANGES IN FOOD ANIMAL PRODUCTION AND IMPACTS ON ANIMAL WASTE MANAGEMENT 3, available at http://www.ncifap.org/bin/u/v/PCIFAP_FW_FINAL1.pdf (“During the past half-century, US production of human food of animal origin has increased in response to greater demand not only domestically but globally . . . . [T]he pressure to produce food from all sources in the United States has resulted in a steady change to fewer, more specialized, and significantly larger production units.”); DOUG GURIAN SHERMAN, UNION OF CONCERNED SCIENTISTS, CAFOs UNCOVERED: THE UNTOLD COSTS OF CONFINED ANIMAL FEEDING OPERATIONS 2 (2008), available at http://www.ucsusa.org/assets/documents/food_and_agriculture/cafos-uncovered.pdf (“Although they comprise only about 5 percent of all U.S. animal operations, CAFOs now produce more than 50 percent of our food animals.”).

3. PEW COMM’N ON INDUS. FARM ANIMAL PROD., PUTTING MEAT ON THE TABLE: INDUSTRIAL FARM ANIMAL PRODUCTION IN AMERICA 5–6, available at http://www.ncifap.org/bin/e/j/PCIFAPFin.pdf [hereinafter PUTTING MEAT ON THE TABLE] (“Intensive animal production began in the 1930s with America’s highly mechanized swine slaughterhouses. Henry Ford even credited the slaughterhouses for giving him the idea to take the swine ‘disassembly’ line idea and put it to work as an assembly line for automobile manufacturing. Later, . . . new technologies in farm animal management emerged that made it feasible to raise livestock in higher concentrations than were possible before . . . . These trends have been accompanied by significant changes in the role of the farmer. More and more animal farmers have contracts with ‘vertically integrated’ meat packing companies to provide housing and facilities to raise the animals from infancy to the time they go to the slaughterhouse. The grower does not own the animals and frequently does not grow the crops to feed them. The integrator (company) controls all phases of production, including what and when the animals are fed . . . . Today, the swine and poultry industries are the most vertically integrated, with a small number of companies overseeing most of the chicken meat and egg production in the United States.”); BULL ET AL., supra note 2, at 9 (“In the vast majority of cases, the responsibility for animal waste management rests with the owner/operator of the animal production facility, whether the animals are owned by the operator or managed by another party as part of a production contract with the facility.”);

National Pollution Discharge Elimination System Permit Regulations and Effluent Limitation Guidelines and Standards for Concentrated Animal Feeding Operations, 66 Fed. Reg. 2960, 3024 (proposed Jan. 12, 2001) (to be codified at 40 C.F.R. pts 122, 412) [hereinafter Proposed NPDES] (noting that under the vertical integration model, a large corporation, such as a slaughtering facility, a meat packing plant, or an integrated food manufacturing facility, will retain ownership of the animals and/or will “exercise[] substantial operational control over the type of production practices used at the CAFO,” but instead of raising their own animals, the corporation will subcontract, often using very stringent contract terms, with smaller farmers to grow the animals until harvest or slaughter).

4. See PUTTING MEAT ON THE TABLE, supra note 3 (summarizing the agricultural revolution and the growth of the CAFO animal production model in the United States).
they could limit the unknown variables of growth by concentrating not only their property and time resources, but also their efforts on the pursuit of maximum, uniform production output.

However, beyond the ethical implications, what this model neglects to consider is that animals are very different from most industrially produced commodities, such as cars or even other agricultural goods, because animals are alive. Consequently, instead of producing basic industrial waste, a CAFO will produce the substantial byproducts of growth and living, including excrement, urine, gases and odors, and animal remains. Yet, while human beings remain vigilant about the need to sanitize and treat our own substantially similar byproducts, the opposite is not true with regard to the treatment and management of industrialized animal wastes.

To appreciate this principle and its regulatory significance, it is necessary to understand the pure quantity of waste, or “effluent,” produced annually by these types of confinement operations, the characteristics of that waste, and the average method by which animal waste is managed and treated. In one estimate, the United States Department of Agriculture (USDA) found that “around 500 million tons of manure are [sic] produced annually by operations that confine livestock and poultry.”

In fact, in 2005 alone the American Society of Agricultural Engineers estimated that confined animals produced roughly “540 million metric tons of dry weight excreta per annum.” Dividing that number across individual CAFO operations, it is estimated that “[f]or example, a [poultry] layer farm . . . of 82,000 laying hens could produce more than 2,800 tons of manure a year, while a farm with 10,000 beef cattle (cattle fattened with feed) could produce about 117,000 tons of manure a year . . . . [A] very large hog farm, with as many as 800,000 hogs, generates more than 1.6 million tons of

5. Id. at 23.
7. The current regulatory threshold is 82,000 birds for a laying hen operation to be defined as a large CAFO under the Clean Water Act. 40 C.F.R. § 122.23(b)(4)(xi) (2006). However, that number is only applicable for laying hen operations that do not use a liquid manure handling system; broiler operations, general chicken operations, and operations that use a liquid manure handling system, for example, have different threshold numbers. Id. For more information regarding CAFO threshold numbers and the regulatory tiering system, see infra Part I.C.
8. The current regulatory threshold for a large beef cattle operation is set at a thousand head of cattle. 40 C.F.R. § 122.23(b)(4)(iii).
9. The current regulatory threshold for a swine operation with hogs weighing less than fifty-five pounds is set at ten-thousand swine. Id. § 122.23(b)(4)(v). For swine operations with hogs weighing more than fifty-five pounds, the regulatory threshold number is 2,500 swine. Id. § 122.23(b)(4)(iv).
manure annually.”

Using North Carolina as an example, it is estimated that in 2002, five contiguous counties in the eastern portion of the State had an estimated population of over 7.5 million hogs; from those hogs, it was further estimated that as much as 15.5 million tons of manure were produced in that year alone.

Otherwise stated, based on the USDA 500 million ton manure production estimate, it is likely that CAFOs produce roughly “three times the [United States Environmental Protection Agency (EPA)] estimate of 150 million tons of human sanitary waste produced annually in the US.”

As such, confined animals produced at least 40 times the 7.6 million tons of human biosolids that are generated and disposed of by publicly owned treatment works. However, unlike human sanitary waste, which is required by the Clean Water Act to be treated before release, CAFO waste along with process-wastewater is generally collected and stored in a waste pit or pile where it is subject to minimal or no treatment before it is spread or sprayed onto land as “fertilizer,” a process called “land application.”

For applied waste, which contains nutrients (including nitrogen and phosphorus), pathogens, antibiotics and other pollutants, to function...
correctly as fertilizer, it must be applied in quantities that can be beneficially absorbed through crop production, also known as application at “agronomic rates.”

If applied incorrectly or in excess amounts, CAFO wastes can percolate through the soil, impacting groundwater resources, or can directly runoff the property, impacting the surrounding environment including surface water resources. In addition, since CAFO waste often contains compounds

Reg. 7176, 7235 (Feb. 12, 2003) (to be codified at 40 C.F.R. pts. 9, 122, 123, 412) [hereinafter NPDES Guidelines and Standards] (“The primary pollutants associated with animal waste are nutrients (particularly nitrogen and phosphorus), organic matter, solids, pathogens, and odorous/volatile compounds. Animal waste is also a source of salts and trace elements and, to a lesser extent, antibiotics, pesticides, and hormones.”); STEPHEN L. HARDEN, U.S. GEOLOGICAL SURVEY, RECONNAISSANCE OF ORGANIC WASTEWATER COMPOUNDS AT A CONCENTRATED SWINE FEEDING OPERATION IN NORTH CAROLINA COASTAL PLAIN (2008), available at http://pubs.usgs.gov/of/2009/1128 (“Water-quality and hydrologic data were collected during 2008 to examine the occurrence of organic wastewater compounds at a concentrated swine feeding operation located in the North Carolina Coastal Plain. . . . Overall, 28 organic wastewater compounds were detected in the collected samples, including 11 household, industrial, and agricultural-use compounds; 3 sterols; 2 pharmaceutical compounds; 5 hormones; and 7 antibiotics. The lagoon sample had the greatest number (20) and highest concentrations of compounds compared to groundwater and surface-water samples.”).

17. BULL ET AL., supra note 2, at 12 (citing U.S. ENVTL. PROT. AGENCY, BIOSOLIDS GENERATION, USE, AND DISPOSAL IN THE UNITED STATES (1999), available at http://www.epa.gov/wastes/conserve/rrr/composting/pubs/biosolid.pdf) (“The final process in the management and use of animal waste has long been its application on land in support of nutrient requirements for crop production. This practice, if done in accordance with established and recommended agronomic rates, is the approved and [industrially] preferred use of production-generated waste.”); GAO-08-944, supra note 2, at 20 (citing ROBERT L. KELLOGG ET AL., U.S. DEPT. OF AGRIC., MANURE NUTRIENTS RELATIVE TO THE CAPACITY OF CROPLAND AND PASTURELAND TO ASSIMILATE NUTRIENTS: SPATIAL AND TEMPORAL TRENDS FOR THE UNITED STATES 91–92 (2000), available at http://www.nrcs.usda.gov/technical/NRI/pubs/manntr.pdf) (“Although manure is considered a valuable commodity, especially in states with large amounts of farmland, like Iowa, where it is used as fertilizer for field crops, in some parts of the country, large farms that raise animals are clustered in a few contiguous counties. . . . As a result, there is much less cropland on which the manure can be applied as fertilizer. . . . A USDA report identified this concern as early as 2000 when it found that between 1982 and 1997 as livestock production became more spatially concentrated that when manure was applied to cropland, crops were not fully using the nutrients in manure and this could result in ground and surface water pollution from the excess nutrients.”).

18. GAO-08-944, supra note 2, at 6 (“[W]ater studies [have] found that nutrients or hormones released from animal feeding operations were causing environmental harm, such as reproductive disorders in fish and degraded water quality. . . . [P]athogens such as E. coli [were contaminating] drinking water, which were then causing gastrointestinal illnesses in humans. . . . EPA . . . has long recognized the potential impacts that water pollutants from CAFOs can have on human health and the environment . . . . “); SHERMAN, supra note 2, at 3 (“Disposal of CAFO manure on an insufficient amount of land results in the runoff and leaching of waste into surface and groundwater, which has contaminated drinking water in many rural areas . . . . “); PUTTING MEAT ON THE TABLE, supra note 3, at 25 (“Animal farming is also estimated to account for . . . more than 30% of the nitrogen and phosphorus loading in the nation’s drinking water resources.”); BULL ET AL., supra note 2, at 12 (“However, high rates of application on sprayfields has bee [sic] associated with increase groundwater nitrate levels and elevated levels of nitrate in nearby streams.”).
that are not used in crop production, such as antibiotic-laden residues, cleaning fluids, and heavy metals, even wastes that are applied at agronomic rates can negatively impact water resources.\footnote{PUTTING MEAT ON THE TABLE, supra note 3, at 25.} In fact, “[a]gricultural runoff laden with chemicals (synthetic fertilizers and pesticides) and nutrients is suspected as a major culprit responsible for many ‘dead zones’ in both inland and marine waters, affecting an estimated 173,000 miles of US waterways.”\footnote{Id. (citing Reducing Water Pollution from Animal Feeding Operations: Hearing Before the H. Subcomm. on Livestock, Dairy, and Poultry and H. Subcomm. on Forestry, Res. Conservation, and Research, 105th Cong. (1998) (statement of Michael Cook, Director of Office of Wastewater Management)).} Finally, significant amounts of air pollutants, such as ammonia, hydrogen sulfide, and particulate matter, can escape from these operations and impair air quality.\footnote{PUTTING MEAT ON THE TABLE, supra note 3, at 25; see GAO-08-944, supra note 2, at 6 (‘‘[A]ir studies [have] linked air emissions from animal feeding operations to adverse human health effects. . . . [These include] respiratory inflammation, . . . headaches, eye irritation, and nausea in people working at or living near these operations.’’).}

Due to these accepted animal confinement and animal waste-treatment and use practices, large-scale livestock and poultry operations have attracted the attention of legislators and policy makers in a number of ways. Specifically, legislators have provided the EPA with the authority to regulate water and air pollutants from CAFOs through a number of federal environment statutes, including the Clean Water Act,\footnote{See Clean Water Act, 33 U.S.C. § 1251 (1972) (granting EPA the authority to regulate discharge of pollutants from point sources such as CAFOs through the National Pollutant Discharge Elimination System (NPDES) program); Clean Air Act, 42 U.S.C. § 7401 (1970) (granting EPA the authority to regulate the emissions of pollutants that pose a threat to human health); Comprehensive Environmental Response, Compensation, and Liability Act of 1980, 42 U.S.C. § 9601 (1980) (granting EPA the authority to respond to the release of hazardous substances that may endanger public health or the environment and require remedial response action when appropriate); Emergency Planning and Community Right-to-Know Act of 1986, 42 U.S.C. § 11001 (1986) (granting EPA the authority to require emergency planning and notification for accidental releases of hazardous substances exceeding reportable quantities under CERCLA).} the Clean Air Act (CAA), the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) and the Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA).\footnote{See generally GAO-08-944, supra note 2 (pointing out EPA’s acknowledgement of CAFO pollution and EPA’s vague enforcement of regulations to control CAFO pollution).} However, as referenced by the United States Government Accountability Office in 2008, EPA has not fully embraced that authority.\footnote{See generally GAO-08-944, supra note 2 (pointing out EPA’s acknowledgement of CAFO pollution and EPA’s vague enforcement of regulations to control CAFO pollution).} The EPA has instead placed most of its regulatory “eggs” into the “basket” that is the Clean Water Act.
Therefore, while the other statutes remain viable pollution control alternatives, this article will explore why and how the EPA uses its authority under the Clean Water Act to regulate the discharge of pollutants from CAFO operations to waters of the United States. Specifically, this article will discuss the 1972 Amendments to the Clean Water Act, including the statutory inclusion of CAFOs as point sources,\(^{25}\) and the generation, implementation and enforcement of the administrative regulations that followed.\(^{26}\)


To understand the growth and the relationship between the Clean Water Act and CAFOs, it is essential to understand the historical circumstances surrounding the regulation of water quality in this country. The process of regulating and eliminating the discharge of pollutants into waters of the United States has been a long and arduous one dating back to the Rivers and Harbors Appropriations Act of 1899 (RHA).\(^{27}\) As the first federal water pollution control act in the United States, the RHA set the stage for the Clean Water Act in two very important ways. First, it banned the “discharge” of “any refuse matter of any kind” into or on the banks of “any navigable water of the United States, or into any tributary of any navigable water.”\(^{28}\) At the same time, this provision, also known as the “Refuse Act,”

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\(^{25}\) A “point source” is:

[A]ny discernible, confined and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, or vessel or other floating craft, from which pollutants are or may be discharged. This term does not include agricultural stormwater discharges and return flows from irrigated agriculture. 33 U.S.C. § 1362(14) (2006).

\(^{26}\) In this note, the past tense will be used to denote regulations that have since been vacated, remanded, or otherwise revised, while the present tense will be used to denote current regulations.

\(^{27}\) 33 U.S.C. § 401.

\(^{28}\) Id. § 407 (“It shall not be lawful to throw, discharge, or deposit, or cause, suffer, or procure to be thrown, discharged, or deposited either from or out of any ship, barge, or other floating craft of any kind, or from the shore, wharf, manufacturing establishment, or mill of any kind, any refuse matter of any kind or description whatever other than that flowing from streets and sewers and passing there from in a liquid state, into any navigable water of the United States, or into any tributary of any navigable water from which the same shall float or be washed into such navigable water; and it shall not be lawful to deposit, or cause, suffer, or procure to be deposited material of any kind in any place on the bank of any navigable water, or on the bank of any tributary of any navigable water, where the same shall be liable to be washed into such navigable water, either by ordinary or high tides, or by storms or floods, or otherwise, whereby navigation shall or may be impeded or obstructed.”).
provided that the Secretary of the Army may, under certain conditions, issue a permit to allow for the limited deposit of such materials into navigable waters, should such discharge be necessary; it also provided that any violation beyond permit limitations “shall be unlawful.”

Second, to ensure compliance with discharge prohibitions, the RHA provided that “[e]very person and every corporation that shall violate, or that shall knowingly aid, abet, authorize, or instigate a violation of” this Act would be liable for civil and criminal penalties. The duty to “vigorously prosecute all offenders,” was left solely to the United States government.

However, since the Refuse Act was generally not aimed at preventing water pollution (but rather at preventing any impedance to navigation caused by the discharge of refuse) and because of the steady decline of water quality conditions in the United States, in 1948 Congress passed its first Federal Water Pollution Control Act (FWPCA). Even upon revision, the FWPCA was generally limited in its applicability, and in the early 1970s, after Ohio’s Cuyahoga River caught fire in 1969 due to pollution, Congress decided to take a more forceful step towards national water

29. Id. (“[T]he Secretary of the Army, whenever in the judgment of the Chief of Engineers anchorage and navigation will not be injured thereby, may permit the deposit of any material above mentioned in navigable waters, within limits to be defined and under conditions to be prescribed by him, provided application is made to him prior to depositing such material; and whenever any permit is so granted the conditions thereof shall be strictly complied with, and any violation thereof shall be unlawful.”).

30. Id. § 411.

31. Id. § 413; see also United States v. Standard Oil Co., 384 U.S. 224, 226–29 (1966) (reviewing the legislative history that led to the 1899 Act); United States v. Republic Steel Corp., 362 U.S. 482, 487 (1960) (discussing the history of federal control over obstructions to navigable waters).


pollution abatement. In 1972, through those Federal Water Pollution Control Act Amendments, the “Clean Water Act” was born.

A. The 1972 Clean Water Act

As the FWPCA was in the process of undergoing a generous transformation from an awkward, adolescent piece of legislation into a sturdy, self-confident Act, Congress made the important decision to prioritize the abatement of water pollution to ensure the security and continuing vitality of the waters in this country. From that perspective, Congress expanded the Act to declare the goal of “[r]estoration and maintenance of [the] chemical, physical and biological integrity of [the] Nation’s waters.” To meet that ambitious goal, Congress made one objective very clear: that the restoration of the Nation’s waters necessitated the elimination of all discharges of all pollutants into waters of the United States.

In “recognize[ing, however,] the impracticality of any effort to halt all pollution immediately,” Congress included a few key provisions to support and guide compliance with the zero discharge objective. First, Congress set a goal that all discharges be eliminated by 1985. Second, Congress included a promising National Pollution Discharge Elimination

40. The Act defines “discharge of a pollutant” to mean, inter alia, “any addition of any pollutant to navigable waters from any point source.” Id. § 1362(12). It defines “navigable waters” to mean “the waters of the United States, including the territorial seas.” Id. § 1362(7).
41. The Act defined “pollutant” very broadly to include “dredged spoil, solid waste, incinerator residue, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand, cellar dirt and industrial, municipal, and agricultural waste discharged into water.” Id. § 1362(6).
42. Id.; see also id. § 1311(a) (“[T]he discharge of any pollutant by any person shall be unlawful.”); S. REP. No. 92-414, at 42 (“The Committee believes that the no-discharge declaration in section 13 of the 1899 Refuse Act is useful as an enforcement tool. Therefore, this section declares the discharge of pollutants unlawful. The Committee believes it is important to clarify this point: No one has the right to pollute.”).
43. S. REP. No. 92-414, at 42.
44. 33 U.S.C. § 1251(a).
System (“NPDES”) permitting program.\textsuperscript{45} This program, designed to lessen and eventually cease the discharge of pollutants from point sources\textsuperscript{46} to waters of the United States by requiring each source to acquire a permit containing specific effluent limitations,\textsuperscript{47} emphasized strength of implementation, compliance and enforcement as three means by which to realize the Act’s pollution abatement goals.\textsuperscript{48} As a result, any discharges not authorized by an approved NPDES permit (or an applicable statutory provision) is prohibited.\textsuperscript{49} Any violation of this statutory prohibition carries with it possible civil and criminal penalties.\textsuperscript{50}

And finally, Congress, in recognizing that “[a] high degree of informed public participation in the control process is essential to the accomplishment of the objectives we seek—a restored and protected natural environment,”\textsuperscript{51} incorporated broad citizen participation and enforcement provisions into the Act.\textsuperscript{52} Within these provisions, Congress was clear that the public should not be considered a burden to the administration of laws, but that it should be considered as an invaluable stakeholder. As such, “[t]he Environmental Protection Agency and the State should actively seek,

\begin{footnotes}
\item[45] See id. §§ 1342, 1362(7); see also EPA v. California ex rel. State Water Res. Control Bd., 426 U.S. 200, 205 (1976) ("The NPDES program was created] as a means of achieving and enforcing the effluent limitations. Under the NPDES program, it is unlawful for any person to discharge a pollutant without obtaining a permit and complying with its terms. An NPDES permit serves to transform generally applicable effluent limitations and other standards including those based on water quality into the obligations (including a timetable for compliance) of the individual discharger, and the Amendments provide for direct administrative and judicial enforcement of permits . . . . In short, the permit defines, and facilitates compliance with, and enforcement of, a preponderance of a discharger’s obligations under the Amendments.” (citations and footnotes omitted)).
\item[46] For an explanation of the term “point source,” see Part I.b.
\item[47] See 33 U.S.C. § 1342(a); see also S. Rep. No. 92-414, at 7–8 (“Under this Act the basis for pollution prevention and elimination will be the application of effluent limitations. . . . The permit system establishes a direct link between the Federal government and each industrial source of discharge into the navigable waters. . . . The Permit system, as restated by this legislation, prohibits the discharge of pollutants into the navigable waters.”).
\item[48] See, e.g., S. Rep. No. 92-414, at 8 (“Progress toward the national goal is to be assisted through the following steps: The legal basis for use of Federal permits to regulate the discharge of pollutants is reinforced and improved. The scope of the 1899 Refuse Act is broadened; the administrative capacity is strengthened. Where the Administrator can identify a direct link between a discharge source and water quality, the Administrator is authorized to tighten controls on the polluter.”); see also id. at 61 (“When EPA discovers a violation of any effluent limitation, it must provide notice to the polluter and the State. Unless the State initiates the enforcement action within 30 days, EPA shall issue an order requiring compliance or bring a civil suit against the polluter.”).
\item[49] 33 U.S.C. §§ 1311(a), 1342(a), (b).
\item[50] See id. § 1319(c), (d) (defining civil and criminal penalties for unauthorized discharges).
\item[52] See, e.g., 33 U.S.C. §§ 1251(e), 1342(j), 1365 (providing public participation in development, revision, and enforcement of regulations; making permits and applications for permits available to the public; and describing when a private citizen may commence a civil suit).
\end{footnotes}
encourage and assist the involvement and participation of the public in the process of setting water quality requirements and in their subsequent implementation and enforcement.\textsuperscript{53}

\textbf{B. The Role of “CAFOs” as “Point Sources” Under the Clean Water Act}

To ensure accuracy in implementation, Congress specified which dischargers were to be categorized as “point sources” and regulated under the Clean Water Act NPDES program.\textsuperscript{54} In doing so, Congress was generally broad in the language it attributed to a “point source,” including discharges from, \textit{inter alia}, “any discernible, confined and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, [or] container.”\textsuperscript{55} To support this universality, Congress abstained from categorically recognizing any specific industrial point sources—any specific sector except concentrated animal feeding operations.\textsuperscript{56}

The definition of point source goes on to include any “\textit{concentrated animal feeding operation} . . . from which pollutants are or may be discharged.”\textsuperscript{57} At the same time, however, it should be recognized that the Act additionally, and perplexingly, excludes from the point source definition “agricultural stormwater discharges and return flows from irrigated agriculture.”\textsuperscript{58} While these two statements may, on first blush, appear to stand in stark contrast,\textsuperscript{59} taken in total, Congress’ intentions here were clear: to recognize, expressly, concentrated animal feeding operations as dischargers of concern under the Clean Water Act.

While the reason Congress chose to specify only one industry as a point source discharger under the Clean Water Act is not one hundred percent clear, it stands to reason that Congress made this decision based upon four main factors: (1) That CAFOs produce a number of pollutants that are

\textsuperscript{53} S. REP. NO. 92-414, at 11.

\textsuperscript{54} As discussed briefly in Part Ia, the NPDES program is only intended to regulate the discharge of pollutants from point source dischargers. Because water pollution that does not originate from point sources (also known as “non-point sources”) is more difficult to define, it is instead regulated more generally under localized pollution abatement programs, such as through Total Maximum Daily Load (TMDL) programs. See 33 U.S.C. § 1313(d).

\textsuperscript{55} \textit{Id.} § 1362(14).

\textsuperscript{56} \textit{Id.}

\textsuperscript{57} \textit{Id.} (emphasis added).

\textsuperscript{58} \textit{Id.}

\textsuperscript{59} See Parts II.b, III.a.ii, and IV.a.iii for a more robust analysis of the agricultural stormwater exemption.
extremely hazardous to both human health\textsuperscript{60} and the environment; (2) That the CAFO industry was expanding in the country at the time;\textsuperscript{61} (3) Discharge from these operations is often less centralized than the “discrete conveyances” otherwise defined as point sources;\textsuperscript{62} and (4) Because “[t]he use of any river, lake, stream or ocean as a waste treatment system is unacceptable.”\textsuperscript{63} Therefore, it would appear that Congress decided to choose the side of caution by recognizing the whole CAFO operation, and not just its “discrete conveyances,” as a point source under the Clean Water Act.

This hypothesis is supported by the following statement contained in the legislative history,

[a]nimal and poultry waste, until recent years, has not been considered a major pollutant . . . . The picture has changed dramatically, however, as development of intensive livestock and poultry production on feedlots and in modern buildings has created massive concentrations of manure in small areas. The recycling capacity of the soil and plant cover has been surpassed . . . . Precipitation runoff from these areas picks up high concentrations of pollutants which reduce oxygen levels in receiving streams and lakes and accelerate the eutrophication process . . . . [W]aste management systems are required to prevent waste generated in concentrated production areas from causing serious harm to surface and ground waters.\textsuperscript{64}

Consequently, CAFOs hold the unique position of being the only point source categorically distinguished under the Clean Water Act, while most other agricultural operations continue to be recognized as nonpoint sources, unless a discrete conveyance exists on their property.\textsuperscript{65} As a result, there is often a tension both in policy and in effect between the diffuse regulation of agriculture generally under the Clean Water Act and the specific need to

\begin{itemize}
\item \textsuperscript{60} See S. REP. NO. 92-414, at 3 (1971), reprinted in 1972 U.S.C.C.A.N. 3668, 3670 (“In particular, the Committee became increasingly concerned during 1970 with the effects of pollution upon public health.”).
\item \textsuperscript{61} \textit{Id}. at 93.
\item \textsuperscript{62} \textit{Id}. at 92.
\item \textsuperscript{63} \textit{Id}. at 6.
\item \textsuperscript{64} \textit{Id}. at 92–93.
regulate CAFO pollution through the NPDES program. It is partially because of that tension that regulation in this area of the law has been subject to the protracted and thorny proceedings that are the subject of the remaining portion of this note.


Despite the plain inclusion of CAFOs in the 1972 definition of “point source,” as of 1973 there still remained a number of questions regarding the degree and capacity of statutory applicability and administration. Therefore, from 1974 (1974 Rule) to 1976 (1976 Rule), EPA undertook a two-step administrative process to establish national guidelines and restrictions for limiting discharges from “feedlots” to waters of the United States—known as the effluent limitation guidelines or “ELGs” for CAFOs—to analyze how an NPDES program should apply to CAFOs, and to provide the definition for “CAFO” under the Clean Water Act. The resulting regulations also provided a number of administrative exemptions to the CAFO NPDES program.

1. The National Effluent Limitation Guidelines and Standards for Feedlots

First, in 1974, EPA issued the national effluent limitation guidelines and standards for feedlots. The guidelines, which define the restrictions on the “quantities, rates, and concentrations of [discharge of] chemical, physical,
biological, and other constituents” from “feedlots,” adopted a basic “no discharge” requirement for all large CAFOs, as further defined through the 1976 NPDES regulations, and allowed smaller CAFOs to maintain a tailored ELG based on the permitting authority’s best professional judgment (BPJ). However, rather than retaining a true zero discharge standard, the guidelines also granted a sizable exemption based on the construction and operation of the CAFO waste management system. Specifically,

The 1974 [ELGs] did not allow [the] discharges of pollutants from CAFOs into the Nation’s waters except when a chronic or catastrophic storm caused an overflow from a facility that had been designed, constructed, and operated to contain manure, process wastewater and runoff . . . from a 25-year, 24-hour storm. In effect, therefore, discharges of pollutants that did occur during or as the direct result of a twenty-five-year, twenty-four-hour storm event or greater were not found to be in violation of the zero discharge standard.

2. The Definition of a “CAFO”

Second, in 1976, EPA established a two-step, three-tiered “CAFO” definitional structure, the basic design of which it still uses today. Through the two-step portion of the analysis, an operation must first determine if it is

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68. 33 U.S.C. § 1362(11); see also id. § 1314(b) (identifying what should be promulgated by the Administrator when issuing regulation); cf. S. Fla. Water Mgmt. Dist. v. Miccosukee Tribe of Indians, 541 U.S. 95, 102–04 (2004) (discussing whether a canal that collects groundwater and rainwater from urban, agricultural, and residential development, and pumps it into a wetland constitutes a discharge from a point source in order to trigger the NPDES permitting requirement).

69. See Effluent Limitations Guidelines, supra note 66, at 5707 (“There shall be no discharge of process waste water pollutants to navigable waters.”); NPDES Guidelines and Standards, supra note 16, at 7207 (explaining that once size categories were established, the large CAFOs were required to comply with the zero discharge standard while the smaller, case-specific, CAFO categories were required to meet operation-specific ELGs, as determined by the permitting authority).

70. NPDES Guidelines and Standards, supra note 16, at 7186; see also Effluent Limitations Guidelines, supra note 66, at 5704 (discussing an exception to the “no discharge” of pollutants rule as a result of unusual rainfall events).


an animal feeding operation (AFO); and second, if it is an AFO, it must
determine if it is a CAFO, based on certain size, construction and discharge
criteria.\textsuperscript{74} An operation is defined as an AFO if it is “a lot or facility” on
which animals are “stabled or confined and fed or maintained for a total of
45 days or more in any 12-month period” and “[c]rops, vegetation, forage
growth, or post-harvest residues are not sustained in the normal growing
season over any portion of the lot or facility.”\textsuperscript{75}

If an operation is found to be an AFO, the regulations further define the
operation as a CAFO if it falls into one of three categorical tiers. In the first
category are AFOs that meet a certain upper-limit “animal units” size
threshold (for example, 1,000 slaughter or feeder cattle or 700 mature dairy
cattle).\textsuperscript{76} Any operation that meets at least this threshold number is
categorized based upon size alone, and is identified as a “large” CAFO. \textsuperscript{77} In
the second category, AFOs that meet a certain, smaller threshold number of
300 to 1,000 animal units (for example, 301 to 1,000 slaughter or feeder
cattle) are defined as “medium” CAFOs if, at the facility, either

\begin{itemize}
\item pollutants are discharged into [navigable] waters . . .
through a manmade ditch, flushing system, or other similar
manmade device; or
\item pollutants are discharged directly
into waters of the United States which originate outside of
and pass over, across, or through the facility or otherwise
come into direct contact with the animals confined in the
operation.\textsuperscript{78}
\end{itemize}

And, finally, an AFO of any size can be categorized as a “small” CAFO if
the permitting authority determines that the operation is a “significant
contributor of pollutants to waters of the United States.”\textsuperscript{79}

However, the 1976 Rule also provided two principal exemptions to the
definition of a “CAFO.” First, compounding on the above-discussed
twenty-five-year, twenty-four-hour exemption, no operation, of any size,
was to be categorized as a CAFO if it discharged only as the result of a
twenty-five-year, twenty-four-hour storm event or greater.\textsuperscript{80} Second, no

\textsuperscript{74} 40 C.F.R. § 122.23(b) (2006).
\textsuperscript{75} Id. § 122.23(b)(1)(i)-(ii).
\textsuperscript{76} 40 C.F.R. pt. 122 app. B(b) (2000) (calculating “animal units” per sector based on livestock
weight and estimated rates of manure production); 40 C.F.R. § 122.23(b)(4).
\textsuperscript{77} Id. § 122.23(b)(4).
\textsuperscript{78} Id. § 122.23(b)(6)(ii) (emphasis added).
\textsuperscript{79} Id. § 122.23(c).
\textsuperscript{80} See NPDES Guidelines and Standards, supra note 16, at 7195 (updating the 1976 Rule and
removing the original 25-year, 24-hour exemption).
poultry operation with a dry litter waste management system was considered to be a “CAFO.” The reasoning, which has since been disproved, was that dry litter poultry operations were considered “totally enclosed systems” that could not discharge pollutants into waters of the United States.

3. The First “Duty to Apply”

The 1976 Rule also provided guidance to assist a “large” CAFO in determining whether to obtain an NPDES permit. It is in this step, later known as the “duty to apply” step, that the 1976 Rule relied upon the language of the Clean Water Act, which provides that “the Administrator may . . . issue a permit for the discharge of any pollutant, or combination of pollutants,” that “the discharge of any pollutant by any person” without a valid NPDES permit “shall be unlawful,” and concluded that, owners or operators of point sources are not required to apply for and obtain pollution discharge permits if there is no discharge of pollutants from such point sources into navigable waters. Thus, totally enclosed systems, such as many poultry operations, without discharges into navigable waters are not subject to the permit requirements regardless of their size. Also, no permits would be required from owners or operators of operations which recycle all pollutants to the land, or which absorb all animal wastes in filter strips or otherwise prevent such wastes from reaching navigable waters.

The regulations also maintained that any CAFO that experienced a nonexempt discharge was liable for civil and criminal penalties under the Clean Water Act.

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81. Id. at 7191.
82. See Proposed NPDES, supra note 3, at 2965 (citing Effluent Limitations Guidelines, supra note 66, at 5704) (proposing to include dry litter poultry operations in the definition of CAFOs); 41 Fed. Reg. 11,458, 11,459 (Mar. 18, 1976).
83. Sensibly, since “small” and “medium” operations are classified as “CAFOs” because of more than just their sizes, they are required to apply for an NPDES permit upon classification.
85. Id. § 1311(a).
87. A “non-exempt discharge” is a discharge that is not exempt through the statute or regulations, and that is not allowed in accordance with a valid NPDES permit.
88. See 33 U.S.C. § 1319 (outlining the role of civil actions and criminal penalties).
D. The 1989 Natural Resources Defense Council Challenge

Under the Clean Water Act, not only must EPA set standards for the discharge of pollutants, including manure and other biological and chemical pollutants, into waters of the United States, but it also must review and revise those standards as necessary. Yet, as of 1989, the CAFO standards had faced no substantive review or revision. Therefore, on October 30, 1989, the Natural Resources Defense Council (“NRDC”) and Public Citizen brought a lawsuit against the EPA for, among other reasons, failure to comply with this mandatory duty of review. As a result of that lawsuit, on January 31, 1992, a settlement was signed that required EPA to review and revise the ELGs for several point source categories, including CAFOs, within a certain timeframe.

II. A REGULATORY SEA CHANGE: CAFOs’ NOTORIETY CATCHES UP WITH THEM

In 2001, in accordance with the timeline established in the lawsuit between EPA, NRDC, and Public Citizen, and in response to a barrage of reports indicating that CAFOs posed a significant threat to water quality and human health, the EPA issued its first new proposed CAFO regulations in twenty-five years (hereinafter referred to as the “2001 Proposed Rule”). In 2003, EPA finalized a significant portion of the 2001 proposed revisions in the National Pollutant Discharge Elimination System Permit Regulation and Effluent Limitation Guidelines and Standards for Concentrated Animal Feeding Operations (CAFOs) (“2003 Rule”). The final amendments contained in the 2003 Rule will be the focus of this part; however, the 2001 Proposed Rule is also noteworthy for a number of the ideas that it advances.

89. Id. § 1314(b); 40 C.F.R. § 401.12(c) (2010).
90. 33 U.S.C. §§ 1314(b), (m)(1), 1311(d).
92. Proposed NPDES, supra note 3, at 2962.
94. NPDES Guidelines and Standards, supra note 16, at 7176.

The 2001 Proposed Rule represents a sea change in the regulation of CAFOs under the Clean Water Act. Up until this point, CAFOs had been regulated in principle through the language and regulations of the Clean Water Act, but they had not been regulated in fact.95 Indeed, prior to the changes implemented through the 2003 Rule, it was estimated that at least sixty percent of AFOs with a thousand animal units or more were allowed to avoid regulation.96 In response, through the 2001 Proposed Rule, and ultimately under the 2003 Rule, EPA not only indicated its intent to prioritize administratively a strong CAFO NPDES program, but it also supported that intent by publicly acknowledging the universe of science on the impacts of CAFOs to human health and water quality, and by effectively categorizing the CAFOs required to apply for a permit under the NPDES program.97 As a result, the idea of the “CAFO” as an actual and detrimental point source of pollution was finally realized and established.

To support this change in perception, EPA, through both the 2001 Propose Rule and the 2003 Rule, produced a significant record.98 In that record, EPA found that:

The continued trend toward fewer but larger operations, coupled with greater emphasis on more intensive production methods and specialization, is concentrating more manure nutrients and other animal waste constituents within some geographic areas. This trend has coincided with increased reports of large-scale discharges from these facilities, and continued runoff that is contributing to the significant increase in nutrients and resulting impairment of many U.S. waterways.99

95. See, e.g., GAO-03-285, supra note 71 (“Until the mid-1990s, EPA placed little emphasis on and had directed few resources to its animal feeding operations permit program because it gave higher priority to other sources of water pollution.”).

96. Id. at 3.

97. See generally Proposed NPDES, supra note 3 (establishing CAFO categories); NPDES Guidelines and Standards, supra note 16, at 7176 (discussing the importance of strengthening CAFO programs under NPDES to benefit human health and the environment by ensuring that CAFO wastes are properly managed).

98. NPDES Guidelines and Standards, supra note 16, at 7179 (“In addition to this preamble, today’s final rule is supported by extensive other information that is part of the administrative record.”).

In fact, reports in the record distinguished the “agricultural sector (including crop production, pasture and range grazing, concentrated and confined animal feeding operations, and aquaculture)” as “the leading contributor to identified water quality impairments in the nation’s rivers and streams, and also the leading contributor in the nation’s lakes, ponds, and reservoirs.”\(^{100}\) Reports further “identified [agriculture] as the fifth leading contributor to identified water quality impairments in the nation’s estuaries.”\(^{101}\)

The record linked CAFO-related water quality impairment to many factors, including “inadequate compliance with existing regulations” and the need for regulatory revision.\(^{102}\) Specifically, the record showed that “changes that have occurred in the livestock and poultry industries since the 1970s,” including consolidation and growth due to increased consumer demand, were necessary factors to be considered during regulatory reform.\(^{103}\) For example, it found that

> In 1997, turkey sales totaled 299 million birds. In comparison, 141 million turkeys were sold for slaughter in 1978. Broiler sales totaled 6.4 billion chickens in 1997, up from 2.5 billion chickens sold in 1974. . . . [Further, t]he number of hogs and pigs sold increased from 79.9 million hogs in 1974 to 142.6 million hogs in 1997.\(^{104}\)

At the same time, however, it found that the “number of U.S. livestock and poultry operations [were] declining due to ongoing consolidation in the animal production industry.”\(^{105}\)

The record further showed that this “trend toward fewer but larger operations,” and more industrialized operations has contributed to large amounts of manure being produced at a single geographic location.\(^{106}\) And that,

> These large operations often do not have sufficient land to effectively use the manure as fertilizer . . . [which] has coincided with increased reports of large-scale discharges

\(^{100}\) Id. at 2972–73.

\(^{101}\) Id. at 2972.

\(^{102}\) Id. at 2972; see also NPDES Guidelines and Standards, supra note 16, at 7231 (“If the State already has nutrient management standards in place, it is sufficient to provide those to EPA along with the State’s submission of regulatory revisions to conform to today’s changes.”).

\(^{103}\) Proposed NPDES, supra note 3, at 2974–75.

\(^{104}\) Id. at 2974.

\(^{105}\) Id.

\(^{106}\) NPDES Guidelines and Standards, supra note 16, at 7180.
from CAFOs, as well as continued runoff that is contributing to the significant increase in nutrients and resulting impairment of many U.S. water bodies.\textsuperscript{107}

As a result, the record showed that:

Pollutants found in animal manures can reach surface water by several mechanisms. . . . [These mechanisms include] runoff, erosion, spills, and dry-weather discharges. In surface discharges, the pollutant travels overland or through drain tiles with surface inlets to a nearby stream, river, or lake. Direct contact between confined animals and surface waters is another means of surface discharge. For other types of discharges, the pollutant travels via another environmental medium (groundwater or air) to surface water.\textsuperscript{108}

And that, “[d]espite more than 25 years of regulation . . . reports of discharge and runoff of manure and manure nutrients from these operations persist.”\textsuperscript{109} In short, EPA recognized that the combination of industry-wide consolidation and an increase in livestock and poultry populations, coupled with minimal improvement to animal waste management practices, resulted in a high potential for industrial discharge.

In addition, an important revision contained in the 2001 Proposed Rule, but that was not ultimately adopted through the 2003 Rule, was the co-permitting of “entities that exercise substantial operational control over CAFOs along with the owner/operator of the facility,”\textsuperscript{110} entities often identified as “integrators.”\textsuperscript{111} In support of that proposal, EPA found that

\begin{quote}
While the permit authority currently may deem such entities to be “operators” under the Clean Water Act and require them to be permitted under existing legal requirements, today’s proposal includes changes to the regulations to identify the circumstances under which co-
\end{quote}

\textsuperscript{107} Id.
\textsuperscript{108} Proposed NPDES, supra note 3, at 2979.
\textsuperscript{109} NPDES Guidelines and Standards, supra note 16, at 7179.
\textsuperscript{110} Proposed NPDES, supra note 3, at 3023.
\textsuperscript{111} See supra text accompanying note 3 (describing vertical integration and the integrator/grower relationship).
permitting is required and how permitting authorities are expected to implement the requirements.\textsuperscript{112}

Further, for permitting authorities to determine if a third party was exerting “substantial operational control” over a CAFO, the 2001 Proposed Rule set out a few distinguishing factors, including whether the third party “(1) Directs the activity of persons working at the CAFO either through a contract or direct supervision of, or on-site participation in, activities at the facility; (2) owns the animals; or (3) specifies how the animals are grown, fed, or medicated.”\textsuperscript{113} In addition, it found that this relationship could be established regardless of that fact that, “many integrator contracts may not provide for direct integrator responsibility for manure management and disposal.”\textsuperscript{114}

EPA believed that this distinction was necessary because of the historical growth of the vertical integration model in U.S. CAFO production. In other words, the “increased use of production contracts is changing the organizational structure of agriculture and is raising policy concerns regarding who is responsible for ensuring that manure and wastewater is contained onsite and who should pay for environmental improvements at a production facility.”\textsuperscript{115} Therefore, by requiring such entities to be “jointly responsible” for all CAFO NPDES permit requirements,\textsuperscript{116} EPA asserted that the final rule could more accurately reflect the composition of the industry while also providing for the accountability of all parties.\textsuperscript{117} In addition, EPA believed that co-permitting would lead to an improvement in manure management practices by the contracted operations.\textsuperscript{118}

To substantiate this proposed change, EPA relied not only on the language of the Clean Water Act, which in section 306 defines an “owner or operator” to mean “any person who owns, leases, operates, controls, or supervises a source,”\textsuperscript{119} but it also relied on cases such as United States v.
Accordingly, EPA determined that under both “existing regulation and existing case law, integrators which are responsible for or control the performance of the work at individual CAFOs may be subject to the CWA as an operator of the CAFO.” As such, it asserted that co-permitting could be a useful tool for bringing both CAFO owners and operators into the NPDES permitting program. While this provision was not ultimately adopted through the 2003 Rule, the policy perspectives that it represents are still prescient in today’s agricultural climate.

B. The 2003 National Pollution Discharge Elimination System Permit Regulation and Effluent Limitation Guidelines and Standards for Concentrated Animal Feeding Operations

The revisions contained in the 2003 Rule were quite extensive, including expansion of the CAFO definition to include all poultry operations and stand-alone operations raising immature animals; amendment to the CAFOs “duty to apply” for an NPDES permit; a CAFO NPDES compliance schedule; a new requirement for operational best management practices (BMPs), including nutrient management plans (NMPs); and a new design standard requirement for new swine, poultry, and veal facilities (“Subpart D” facilities). These changes were expected to mitigate future water quality impairment and the associated human health and ecological risks by reducing pollutant discharges from facilities that confine a large number of animals in a single location. At the same time, however, two of the provisions adopted through the 1974 and 1976 Rules remained intact; namely, the 2003 Rule retained the


122. Proposed NPDES, supra note 3, at 3024.

123. Id. at 3024–25.

124. See 40 C.F.R. §§ 412.40–412.47 (2010) (identifying swine, poultry, and veal operations as Subpart D facilities because of their categorical association in provisions governing the specific effluent terms for these operations); id. §§ 412.1–412.37 (identifying the three other CAFO categorical subparts as: Subpart A – horses and sheep; Subpart B – ducks; and Subpart C – dairy cows and cattle other than veal calves).

125. See generally NPDES Guidelines and Standards, supra note 16, at 7181–82 (discussing the interests of the key entities which affected the final rule).

126. Id. at 7179–80.
requirement that large CAFOs be held to a zero discharge effluent standard and the two-step, three-tiered CAFO definitional structure.  

1. National Effluent Limitation Guidelines and Standards and Land Application Related Discharges

The 2003 Rule maintains the zero-discharge effluent limitation for “large” CAFOs, and allows “small” and “medium” CAFOs to maintain a tailored, case-by-case ELG based on the permitting authority’s best professional judgment (BPJ). In addition, it officially includes within the zero-discharge standard any land application-related discharges of manure and process wastewater from a CAFO. As a result, “[a]ll permits for CAFOs must contain terms and conditions on land application in order to ensure appropriate control of discharges.” To help ensure compliance with effluent limitations, the 2003 Rule also establishes reporting, recordkeeping, and sampling requirements for all permitted CAFOs.

2. The Definition of a “CAFO”

Starting with the 1976 CAFO definitional structure, EPA implements four primary amendments. First, EPA revises the operational size determination by replacing “animal units” with a listing of the actual

127. Id. at 7182–83.
128. See supra Part I.C. (discussing how the 1974/1976 regulations set a zero discharge ELG standard for CAFO operations); see also supra text accompanying note 67 (stating that this standard was based on the “best available technology economically achievable” for the industry). As of 2003, the necessary technology-based ELG review had evolved into a three-part analysis, based on the regulated pollutant, for already existing point sources, and the generation of new source performance standards (NSPS) for all new point sources. 33 U.S.C. §§ 1314, 1316 (2006). For existing sources, the three-part technology-based analysis requires all point sources to have an ELG standard based on the best practicable control technology currently available (BPT), which is the first-level effluent standard for pollutants under the Clean Water Act; a more stringent ELG standard based on the best conventional pollutant control technology (BCT) for all “conventional pollutants,” including total suspended solids (TSS), biological oxygen demand (BOD), pH, fecal coliform, and oil and grease; and, finally, the most stringent ELG standard based on the best available technology economically achievable (BAT), which controls the discharge for toxic and nonconventional pollutants to navigable waters. Id. §§ 1311, 1314(a)(4). The alternative NSPS are to be established in accordance with CWA section 306. Id. § 1316.
129. NPDES Guidelines and Standards, supra note 16, at 7184.
130. See id. at 7196 (“[T]hat runoff from the application of CAFO manure, litter, or process wastewaters to land that is under the control of a CAFO is a discharge from the CAFO and subject to NPDES permitting requirements.”); see also id. at 7190 (explaining how the new revisions apply generally to all CAFOs regardless of species).
131. Id. at 7196.
132. Id. at 7212, 7216–17, 7230–31.
number of animals required to meet an applicable threshold. For example, instead of a large dairy CAFO being based on 1,000 “animal units” of mature dairy cattle, it is now based on the actual number of mature dairy cattle that equaled 1,000 animal units, which is 700 dairy cattle. Likewise, instead of a large swine CAFO being based on 1,000 animal units of swine over 55 pounds; it is now based on a more definable 2,500 hogs.

Second, the 2003 Rule expands the definition of “CAFO” to include dry litter poultry operations. In support of this change, the 2003 Rule states that

dry poultry operations continue to contaminate surface water and ground water because of rainfall coming in contact with dry manure and litter that is stacked in exposed areas; accidental spills such as from egg-wash facilities and drinking water lines; improper handling of large numbers of mortalities; and improper land application of litter.

Since most poultry operations rely on dry litter systems, this change brings a considerable portion of the poultry industry into the permitting structure.

Third, while EPA retains the ELG design standard language requiring “containment based on the 25-year, 24-hour storm event,” it removes the permitting exemption that was based on that design standard alone. Therefore, operations that were previously excluded from the definition of CAFO because they only discharged as the result of a twenty-five-year, twenty-four-hour storm are brought back into the CAFO regulatory structure, and if they meet all other threshold requirements, would be required to obtain an NPDES permit. Finally, the 2003 Rule incorporates

133. See id. at 7189 (“EPA is no longer using the term ‘animal units’ to define size classes in this final rule. Instead, EPA is setting thresholds by specifying the actual number of animals.”).
135. Id. § 122.23(b)(4)(iv).
136. See NPDES Guidelines and Standards, supra note 16, at 7191 (eliminating “the condition for continuous overflow watering systems from the CAFO definition”); see also 40 C.F.R. § 122.23 (expanding the scope of CAFOs to include dry litter poultry operations).
137. NPDES Guidelines and Standards, supra note 16, at 7192.
138. See id. ("[L]iquid manure systems are used at [only] approximately 25 percent of layer operations and are not generally used at broiler operations. As a result, most chicken operations [were] not covered by the [previous] regulations.").
139. Id. at 7196.
140. See id. at 7195 (noting that EPA believes that the “25-year, 24-hour storm permit exemption has created confusion and ambiguity that undermines the ability of permitting authorities to implement the CAFO regulations effectively”).
immature swine and dairy cattle into the definition of a CAFO and eliminates the “mixed animal calculation.”

3. The Agricultural Stormwater Exemption

At the same time, the 2003 Rule exempts from regulation discharges that only occur as the result of “agricultural storm water.” Basing its decision on the definition of point source under the Clean Water Act, EPA defines “agricultural storm water” to include “discharges of manure, litter, and process wastewater from the land application areas of a CAFO [that result when] manure or process wastewater has been applied in accordance with site-specific nutrient management practices that ensure appropriate agricultural utilization of the nutrients in the manure or process wastewater.” No dry weather discharges of manure or process wastewater or discharges from the production area are considered exempt “agricultural storm water.”

4. The 2003 “Duty to Apply”

Arguably, the most significant revision effectuated through the 2003 Rule was to the CAFO’s “Duty to Apply” for an NPDES permit. Recognizing the overwhelming evidence concerning the potential of CAFOs to discharge pollutants into waters of the United States, EPA attempted to bring all discharging CAFOs into the NPDES permitting program by mandating “all CAFO owners or operators to seek coverage

141. Id. at 7192.
142. See id. at 7194–95 (defining an “AFO . . . as a CAFO only if the specific threshold for any one animal sector . . . is met,” instead of calculating whether the AFO is a CAFO based on the compounding of a number of animal types at one operation).
143. Id. at 7197.
144. See 33 U.S.C. § 1362(14) (2006) (“The term ‘point source’ means any . . . concentrated animal feeding operation . . . from which pollutants are or may be discharged. This term does not include agricultural stormwater discharges . . . .”).
145. See NPDES Guidelines and Standards, supra note 16, at 7197 (“Such practices [are] specified in 122.42(c)(1)(vi)-(ix) . . . .”)
146. The “production area” is the “part of the AFO that includes the animal confinement area, the manure storage area, the raw materials storage area, and the waste containment areas.” 40 C.F.R. § 122.23(b)(8) (2006). Regulations further define the parameters of these specific areas. Id.
147. See NPDES Guidelines and Standards, supra note 16, at 7198 (regarding “production area” discharges, EPA clarified that they are not to be included in the agricultural stormwater exemption “because they involve the type of industrial activity that originally led Congress to single out CAFOs as point sources”).
148. See id. at 7201 (“EPA continue[d] to believe that there is a strong need and a sound basis for adopting this duty to apply . . . .”).
under an NPDES permit, except in very limited situations where they make an affirmative demonstration of “no potential to discharge.”149 This revised Duty to Apply was designed to “identify and ultimately to prevent actual unauthorized discharges to the waters of the United States, consistent with the intent and goals of the Clean Water Act,”150 while also allowing operations without a potential to discharge to remove themselves, affirmatively, from the permitting scheme.151 In addition, EPA believed that application of this standard would ensure the discontinuation of not just continuous discharges but also of the prohibited intermittent and unplanned discharges that often occur at CAFO operations.152

5. The Compliance Schedule

For CAFOs required to apply for a permit, the 2003 Rule provided a timeline for both operational and state compliance with the provisions of the 2003 Rule.153 To ensure timely compliance, the 2003 Rule also established a list of the minimum required permit components and conditions.154 Upon compliance, “CAFO owner[s] or operator[s] [must] maintain permit coverage for the CAFO until there is no remaining potential for a discharge of manure, litter, or associated process wastewater other than agricultural storm water from land application areas, that was generated while the operation was a CAFO.”155 If a CAFO does not maintain permit coverage or if the CAFO discharges pollutants without an NPDES permit or violates “any permit condition or limitation” contained in the NPDES permit, the CAFO would become subject to civil and criminal penalties.156

6. The Nutrient Management Plan

To ensure compliance with effluent limitations, the 2003 Rule requires every CAFO operation to produce a nutrient management plan (NMP)

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149. Id. at 7200 (emphasis added).
150. Id. at 7201.
151. An operation can be found to have “no potential for discharge” if, based on technical information submitted to the permitting authority, the permitting authority can determine that there is “no potential for any CAFO manure, litter, or wastewater to be added to waters of the United States from an operation’s production or land application areas.” Id. at 7202.
152. Id. at 7201.
153. Id. at 7204, 7231.
154. Id. at 7206–31.
155. Id. at 7229.
before it receives an NPDES permit.\footnote{157} The NMP is a site-specific, detailed account of the operation’s intended land application practices.\footnote{158} The NMP “assists” the CAFO in “complying with [its] ELGs”\footnote{159} by “reduc[ing] the discharge of nitrogen, phosphorus, and other pollutants in field runoff by restricting the amount of manure, litter, and other process wastewaters that may be applied to the amount that is appropriate for agricultural purposes.”\footnote{160} Through the 2003 Rule, however, EPA did not require the NMP to be submitted as part of the permit application, but instead required the documents to be “maintained on-site” and to “be available upon request by EPA or the State permitting authority.”\footnote{161}

7. Public Participation

To account for the public participation requirements of the Clean Water Act, EPA explained that the public can participate in the permitting process by “submit[ting] comments on draft individual and general permits and may request a public hearing on such a permit.”\footnote{162} In addition, the public was provided with certain opportunities for participation in the “no potential to discharge” determination.\footnote{163} Finally, the permitting authority is required to make available to the public annual and discharge reports upon request.\footnote{164} Otherwise, “[t]he permitting authority has discretion, subject to applicable regulations, to determine how much of [the operational and waste management practice] information to make available to the public and in what manner.”\footnote{165} Further, since the NMP was to be maintained by the CAFO on-site, it was not made available to the public unless otherwise submitted to the permitting authority; if it was submitted to the permitting authority, and it could be subject to Confidential Business Information (CBI) redaction.\footnote{166}

\footnote{157} See NPDES Guidelines and Standards, supra note 16, at 7226 (“Under today’s final rule, NPDES permits for all CAFOs will require the development and implementation of a nutrient management plan. At a minimum, a nutrient management plan must include BMPs and procedures necessary to achieve effluent limitations and standards.”). Additionally, NPDES permits for all CAFOs must include certain, minimum elements. Id.

\footnote{158} Id. at 7209.

\footnote{159} Id.; see also id. at 7206 (identifying “production area” BMP requirements).

\footnote{160} Id. at 7210.

\footnote{161} Id. at 7206.

\footnote{162} Id. at 7233.

\footnote{163} Id.

\footnote{164} Id.

\footnote{165} Id. at 7234.

\footnote{166} Id.
8. New Source Performance Standards for Subpart D Facilities and the Best Conventional Pollution Control Technology for Fecal Coliform

The 2003 Rule established a zero discharge new source performance standard (NSPS)\textsuperscript{167} for all new Subpart D swine, poultry, and veal operations by requiring all new source waste management and storage facilities to be “designed, constructed, operated, and maintained to contain all manure, litter, and process wastewater including the runoff . . . from a 100-year, 24-hour rainfall event.”\textsuperscript{168} Finally, the 2003 Rule does not require the use of any additional best conventional pollution control technologies (BCT)\textsuperscript{169} to achieve greater reductions in conventional pollutants, including total suspended solids (TSS), biological oxygen demand (BOD), pH, fecal coliform, oil and grease.\textsuperscript{170}

In short, the 2003 Rule takes an important step towards administratively stopping the impacts of CAFOs to human health and water quality by bringing all discharging CAFOs into the NPDES permitting program. It does so by clarifying not only which operations must apply for a permit but also what those applications must contain. After publication, however, several provisions to the 2003 Rule were challenged in the United States Court of Appeals for the Second Circuit in Waterkeeper Alliance, Inc. v. U.S. EPA.\textsuperscript{171} As further discussed in Part III, several provisions of the 2003 Rule were ultimately vacated and several provisions of the 2003 Rule were upheld. Any provision from the 2003 Rule not vacated or revised as a direct result of the 2005 Waterkeeper decision remains controlling regulatory law.\textsuperscript{172}

\begin{footnotesize}
\begin{itemize}
\item[167.] See id. at 7185–86 (“[NSPS] reflect effluent reductions that are achievable based on the best available demonstrated control technology. New facilities have the opportunity to install the best and most efficient production processes and wastewater treatment technologies.”).
\item[168.] Id. at 7219.
\item[169.] See supra text accompanying note 128 (reviewing technology-based effluent limitations).
\item[170.] NPDES Guidelines and Standards, supra note 16, at 7224; see also 33 U.S.C. §§ 1311(b)(2)(E), 1314(a)(4), (b)(2) (2006) (providing the timeframe for promulgation of requirements for pollutants identified in § 1314(a) and identifying the factors to be taken into account regarding best control measures).
\item[171.] Waterkeeper Alliance, Inc. v. EPA, 399 F.3d 486 (2d Cir. 2005).
\item[172.] Revised National Pollution Discharge Elimination System Permit Regulation and Effluent Limitation Guidelines for Concentrated Animal Feeding Operations in Response to the Waterkeeper Decision; Final Rule, 73 Fed. Reg. 70,417, 70,421 (Nov. 20, 2008) [hereinafter Revised NPDES] (to be codified at 40 C.F.R. pts 9, 122, 412).
\end{itemize}
\end{footnotesize}
III. THE WATERKEEPER DECISION

In 2003, environmental and CAFO industry representatives challenged several provisions of the 2003 Rule. As a result of that challenge, the court vacate[d] those provisions of the CAFO Rule that: (1) allow permitting authorities to issue permits without reviewing the terms of the nutrient management plan; (2) allow permitting authorities to issue permits that do not include the terms of the nutrient management plans and that do not provide for adequate public participation; and (3) require CAFOs to apply for NPDES permits or otherwise demonstrate that they have no potential to discharge.173

The court further remanded additional aspects of the rule, and provided that EPA must:

(1) definitively select a BCT standard for pathogen reduction; and (2) clarify—via a process that adequately involves the public—the statutory and evidentiary basis for allowing Subpart D CAFO’s to comply with the new source performance standards by either: (a) designing, constructing, operating and maintaining production areas that could contain all manure, litter and process wastewater including the runoff and direct precipitation from a 100-year, 24-hour rainfall event; or (b) complying with alternative performance standards that allow production area discharges, so long as such discharges are accompanied by an equivalent or greater reduction in the quantity of pollutants released to other media.174

Finally, the court direct[ed] the EPA to clarify the statutory and evidentiary basis for failing to promulgate water quality based effluent limitations for discharges other than agricultural stormwater discharges, as that term is defined in 40 C.F.R. § 122.23(e), and also direct[ed] EPA to clarify whether

173. Waterkeeper Alliance, 399 F.3d at 524.
174. Id.
states may develop water quality based effluent limitations on their own.\textsuperscript{175}

In “all other respects,” the court upheld the 2003 Rule.\textsuperscript{176} Since both the court’s holding and its analysis of the issues define EPA’s regulatory response, as discussed in Part IV, each of the issues discussed in the decision will be addressed in turn.

\textit{A. Challenges to the Permitting Scheme}

The first issue the court addressed was the EPA’s authority to require a point source to apply for an NPDES permit under the Clean Water Act.\textsuperscript{177} Specifically, the court reviewed the “Duty to Apply” provisions, established under the 2003 Rule, and the definition and application of the agricultural stormwater exemption.\textsuperscript{178} Each provision will be discussed in turn.

\textbf{1. The Duty to Apply}

With regard to the “Duty to Apply,” the court found that EPA exceeded its statutory authority by requiring “all CAFOs to either apply for NPDES permits or otherwise demonstrate that they have no potential to discharge.”\textsuperscript{179} Focusing on the use of the word “potential” in the 2003 Duty to Apply, the court stated that the “Clean Water Act gives the EPA jurisdiction to regulate and control only \textit{actual} discharges—not potential discharges,” and that because the 2003 Rule was regulating not just “actual” discharges, but also “potential” discharges, that it was, in effect, improperly regulating the point sources themselves.\textsuperscript{180} Therefore, in determining that the Clean Water Act authorizes the EPA to regulate only the \textit{discharge of pollutants},\textsuperscript{181} the court found that the 2003 Rule went too far by “imposing permitting obligations on all CAFOs regardless of whether or not they have, in fact, added any pollutants to the navigable waters, i.e. discharged any pollutants.”\textsuperscript{182}

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\textsuperscript{175} Id.  \\
\textsuperscript{176} Id.  \\
\textsuperscript{177} Id.  \\
\textsuperscript{178} Id.  \\
\textsuperscript{179} Id. at 504.  \\
\textsuperscript{180} Id. at 505; \textit{see} Natural Res. Def. Council, Inc. v. EPA, 859 F.2d 156, 170 (D.C. Cir. 1988) (“[T]he CWA does not empower the agency to regulate point sources themselves; rather, EPA's jurisdiction under the operative statute is limited to regulating the discharge of pollutants.”).  \\
\textsuperscript{181} Waterkeeper Alliance, 399 F.3d at 504 (construing 33 U.S.C. §§ 1311, 1342).  \\
\textsuperscript{182} Id. at 505.
\end{flushright}
Recognizing, however, that “the EPA primarily advances the [Clean Water] Act’s objectives—including the ambitious goal that water pollution be not only reduced, but eliminated—through the use of NPDES permits that, while authorizing some water pollution, place important restrictions on the quality and character of that licit pollution,” 183 the court was clear that it did not consider “whether the record here supports the EPA’s determination that Large CAFOs may reasonably be presumed to be such potential dischargers.” 184 Rather, in articulating that its decision was based in large part on the Duty to Apply’s inappropriate reliance on a CAFO’s “potential” to discharge, the court narrowed its holding by stating that:

[T]he EPA has marshaled evidence suggesting that such a prophylactic measure may be necessary to effectively regulate water pollution from Large CAFOs, given that Large CAFOs are important contributors to water pollution and that they have, historically at least, improperly tried to circumvent the permitting process. . . . [Therefore, w]e also note that the EPA has not argued that the administrative record supports a regulatory presumption to the effect that Large CAFOs actually discharge.185

As such, the court arguably left open the door for EPA to determine, based on a regulatory presumption that all large CAFOs, or certain categories of CAFOs, do actually discharge under the Clean Water Act and must apply for an NPDES permit under the Clean Water Act.

2. The Agricultural Stormwater Exemption

Finding the plain language of the Clean Water Act vague with regard to how the term “agricultural stormwater” is to apply to point sources, the Waterkeeper court affirmed EPA’s interpretation of the agricultural stormwater exemption.186 Because the court found that the reference to agricultural stormwater was not included in the Clean Water Act until 1987, the court did not base its decision on the Act’s 1972 legislative history.187 Instead, giving deference to EPA’s interpretation, the court found that:

183. Id. at 491 (citation omitted).
184. Id. at 506 n.22.
185. Id.
186. Id. at 507.
187. Id. at 507–08.
Discharges from land areas under the control of a CAFO can and should generally be regulated, but where a CAFO has taken steps to ensure appropriate agricultural utilization of the nutrients in manure, litter, and process wastewater, it should not be held accountable for any discharge that is primarily the result of “precipitation.”

B. Challenges to Public Participation and the Effluent Limitation Guidelines

The Waterkeeper court addressed a number of the 2003 national effluent limitation guidelines for CAFOs, including: the basic ELGs that apply to all CAFOs (for example, the regulation of discharges from a CAFO’s land application area and the CAFO’s NMP); the application of the best conventional pollutant control technology (BCT) standard to pathogens; the new source performance standards (NSPS) established for Subpart D facilities; and the application of water quality-based effluent limitations to CAFOs. In addition, as it relates to the incorporation of effluent limitations into a NPDES permit, the court also analyzed the necessity for public participation in the permitting program and under the Clean Water Act.

By way of review,189 “[r]egardless of the issuer, every NPDES permit is statutorily required to set forth, at the very least, ‘effluent limitations,’ that is, [sic] certain ‘restriction[s] . . . on [the] quantities, rates, and concentrations of chemical, physical, biological, and other constituents which are discharged from point sources into navigable waters.’”190 Specific “effluent limitations” are often established through more general “effluent limitation guidelines,” or ELGs.191 ELGs contain technology-based restrictions on water pollution; in addition, if technology-based standards are not sufficient to maintain certain water quality standards, then a NPDES permit must include additional water quality based effluent limitations (WQBEL).192

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188. Id. at 509.
189. For an additional review of effluent limitations, please see supra notes 67 and 128.
190. Waterkeeper Alliance, 399 F.3d at 491 (quoting S. Fla. Water Mgmt. Dist. v. Miccosukee Tribe of Indians, 541 U.S. 95, 125 (2004)); see S. Fla. Water Mgmt. Dist., 541 U.S. at 125 (“Generally speaking, the NPDES program requires dischargers to obtain permits that place limits on the type and quantity of pollutants that can be released into the Nation’s waters.”).
191. Waterkeeper Alliance, 399 F.3d at 491.
192. Id. at 491–92; see also 33 U.S.C. §§ 1311–14, 1316 (2006) (discussing the timetable of implementation and describing additional ways to establish requirements for toxic pollutants).
1. Regulating the Discharges from the Land Application Area

The court affirmed the 2003 Rule’s regulation of discharge from a CAFO’s land application area.\(^{193}\) In short, the court found that “any discharge from a land area under the control of a CAFO is a point source discharge subject to regulation because it is a discharge from a CAFO.”\(^{194}\) The court based its decision on the statutory definition for point source, which includes the entire CAFO.\(^{195}\) In addition, the court found it irrelevant whether the land application related discharge has been “collected” or “channelized.”\(^{196}\)

2. The Nutrient Management Plan

Because the 2003 Rule did not require the permitting authority to receive and review the nutrient management plan (NMP) prior to issuing a permit, and did not require the NMP document to be made available for public review prior to issuance of a permit, the court found the nutrient management provisions of the 2003 Rule unlawful.\(^{197}\) The court based its determination on the fact that the “terms of the nutrient management plans are themselves effluent limitations,”\(^{198}\) which the Clean Water Act requires to be made available to the permitting authority and to the public for review prior to the issuance of a permit.\(^{199}\) In support of this conclusion, the court

\(^{193}\) Waterkeeper Alliance, 399 F.3d at 510.
\(^{194}\) Id.
\(^{195}\) Id. (citing 33 U.S.C. § 1362(14)).
\(^{196}\) Id.
\(^{197}\) Id. at 524.
\(^{198}\) Id. at 501; see also id. at 502–03 (“There is no doubt that under the CAFO Rule, the only restrictions actually imposed on land application discharges are those restrictions imposed by the various terms of the nutrient management plan, including the waste application rates developed by Large CAFOs pursuant to their nutrient management plans. Indeed, the requirement to develop a nutrient management plan constitutes a restriction on land application discharges only to the extent that the nutrient management plan actually imposes restrictions on land application discharges. . . . Because we believe that the terms of the nutrient management plans constitute effluent limitations, we hold that the CAFO Rule—by failing to require that the terms of the nutrient management plans be included in NPDES permits—violates the Clean Water Act and is otherwise arbitrary and capricious in violation of the Administrative Procedure Act.”).
\(^{199}\) Id. at 502 (“The Clean Water Act unquestionably provides that all applicable effluent limitations must be included in each NPDES permit.” (emphasis added)); see also id. at 498 (“Under the Act, permits authorizing the discharge of pollutants may issue only where such permits ensure that every discharge of pollutants will comply with all applicable effluent limitations and standards. . . . [F]or example, that when the EPA is, itself, issuing NPDES permits, the EPA may issue a permit for the discharge of any pollutant or combination of pollutants ‘upon condition that such discharge will meet . . . all applicable requirements [including effluent limitations . . .].’ The Act further provides that the EPA ‘shall prescribe conditions for such permits to assure compliance with [all applicable requirements,
found that if the NMP was not made available, neither the permitting authority, nor the public, could confirm whether the point source was complying with the basic permit requirement of generating a site-specific NMP document, as required by 40 C.F.R. § 122.42. In addition, neither the permitting authority nor the public could enforce the effluent limitations contained in a NMP document. Therefore, the court found that, “[b]y failing to provide for permitting authority review of the nutrient management plans, the CAFO Rule plainly violates [the] statutory commandments [of the Clean Water Act] and is otherwise arbitrary and capricious under the Administrative Procedure Act.”

In addition, in not providing the NMP document to the public prior to the issuance of any permit, the court found that the 2003 Rule “deprives the public of the opportunity for the sort of regulatory participation that the Act guarantees because the Rule effectively shields the nutrient management plans from public scrutiny and comment.” In effect, the court found that in not making the NMP document available, the 2003 Rule violated Clean Water Act public participation requirements because:

[T]he CAFO Rule deprives the public of its right to assist in the “development, revision, and enforcement of . . . [an] effluent limitation.” . . . The CAFO Rule also impermissibly compromises the public’s ability to bring citizen-suits, a “proven enforcement tool” that “Congress intended [to be used . . . ] to both spur and supplement government enforcement actions.” . . . [As a result,] citizens would be limited to enforcing the mere requirement to develop a nutrient management plan, but would be without means to enforce the terms of the nutrient

inclu_12345ding effluent limitations].’ Similarly, . . . states [can] distribute NPDES permits only where, inter alia, the state permitting programs “apply, and insure compliance with, any applicable [effluent limitations and standards].’” (citations omitted)).

200. See id. at 503 (failing to discuss or vacate the NMP provisional requirements established through the 2003 Rule).

201. Id. at 499 (“[T]he CAFO Rule does nothing to ensure that each Large CAFO has, in fact, developed a nutrient management plan that satisfies the [regulatory] requirements. The CAFO Rule does nothing to ensure, in other words, that each Large CAFO will comply with all applicable effluent limitations and standards.”); id. at 500 (“[T]he CAFO Rule does not adequately prevent Large CAFOs ‘from misunderstanding or misrepresenting’ their specific situation and adopting improper or inappropriate nutrient management plans, with improper or inappropriate waste application rates.”).

202. Id. at 499.

203. Id. at 503.
management plans because they lack access to those terms.\textsuperscript{204}

Therefore, the court found that to comply with the requirements and intent of the Clean Water Act, the terms of a CAFO’s nutrient management plan must be made available to the public for meaningful review prior to the issuance of an NPDES permit to that CAFO.\textsuperscript{205}

3. Challenge to the Best Conventional Pollutant Control Technology Standard for Pathogens

For “conventional pollutants,” including fecal coliform, it is well established that EPA must go through an additional level of review before it sets applicable effluent limitations.\textsuperscript{206} However, while EPA “does not here dispute that there is a more than \textit{de minimis} presence of pathogens in animal waste regulated by the CAFO Rule,”\textsuperscript{207} or that “under the Clean Water Act, [it must] promulgate BCT-based effluent limitations for at least one pathogen, namely fecal coliform,”\textsuperscript{208} it did not, under the 2003 Rule, make an “affirmative finding that the BCT-based ELGs adopted in the CAFO Rule do \textit{in fact} represent the best conventional control technology for reducing pathogens.”\textsuperscript{209} Because it did not make that affirmative finding, the court found that “the CAFO Rule violates the Clean Water Act,”\textsuperscript{210} and it remanded the issue back to EPA either to make the necessary affirmative finding of fact or to generate a new BCT-based effluent limitation “for pathogens.”\textsuperscript{211}

4. Challenge to the New Source Performance Standards for Subpart D Facilities

Under the Clean Water Act, the NSPS must “reflect the greatest degree of effluent reduction which the Administrator determines to be achievable through application of the best available demonstrated control technology, processes, operating methods, or other alternatives, including, where

\begin{itemize}
\item \textsuperscript{204} Id. at 503–04 (citing 33 U.S.C. § 1251(e) (2006); S. REP. NO. 99-50 (1985)).
\item \textsuperscript{205} \textit{Waterkeeper Alliance}, 399 F3d at 504, 524.
\item \textsuperscript{206} See 33 U.S.C. § 1314(b)(1)(A), (4)(A) (2006) (including cost effectiveness tests of additional industrial treatment beyond BPT).
\item \textsuperscript{207} \textit{Waterkeeper Alliance}, 399 F3d at 519.
\item \textsuperscript{208} Id. at 518; see 33 U.S.C. §§ 1311(b)(2)(E), 1314(a)(4) (providing the timeframe for promulgation of requirements for pollutants identified in 33 U.S.C. § 1314 (a)).
\item \textsuperscript{209} \textit{Waterkeeper Alliance}, 399 F3d at 519.
\item \textsuperscript{210} Id.
\item \textsuperscript{211} Id. at 524.
\end{itemize}
practicable, a standard permitting no discharge of pollutants.” 212 In accordance with this mandate, the 2003 Rule established a “total prohibition” standard for all new Subpart D sources. 213 However, at the same time, EPA only modeled “potential overflows and pollutant loads from a 25-year, 24-hour storm event,” and therefore potentially allowed those sources to discharge pollutants in the event of 100-year, 24-hour storm. 214 The court, finding those two facts to contradict each other because “substantially preventing discharges is not the same as prohibiting them outright,” 215 remanded the provision to EPA for further consideration and review. 216

5. Challenge to EPA’s Failure to Impose Water Quality Based Effluent Limitations

The 2003 Rule did not promulgate any WQBELs for CAFOs. 217 At the same time, the 2003 Rule “exempts discharges other than agricultural stormwater discharges from WQBELs” by, for example, stating that it “does not expect that [WQBELs] will be established for CAFO[s].” 218 Therefore, the court, finding it unclear “whether the CAFO Rule bars the states from promulgating WQBELs for discharges other than agricultural stormwater discharges, and, if so, why,” 219 directed EPA to “clarify the statutory and evidentiary basis for failing to promulgate [WQBELs] . . . and also direct[ed] the EPA to clarify whether states may develop [WQBELs] on their own.” 220

Accordingly, unlike the regulatory sea change experienced through the 2003 Rule, the Waterkeeper decision in many aspects reversed the trajectory of the Clean Water Act regulatory program for CAFOs. However, in a number of ways, it also advanced the directives of the Act by recognizing, for example, the strong role that public participation is meant to play in the Act’s implementation and enforcement. Therefore, in response to this decision, in 2008, EPA issued a Revised National Pollution

213. Waterkeeper Alliance, 399 F.3d at 521.
214. Id.
215. Id.
216. Id. at 524; see also id. at 521 (stating that this provision was additionally remanded because EPA had not established a suitable record to support using the hundred-year, twenty-four-hour storm to comply with the NSPS for Subpart D facilities).
217. Id. at 522.
218. Id.
219. Id.
220. Id. at 524.
IV. THE DESIGN AND DESTINY OF THE 2008 REVISED NATIONAL POLLUTION DISCHARGE ELIMINATION SYSTEM PERMIT REGULATION AND EFFLUENT LIMITATIONS GUIDELINES FOR CONCENTRATED ANIMAL FEEDING OPERATIONS

As with the 2003 Rule, the 2008 Rule was conceived after a deliberative administrative rulemaking process. Additionally, like the 2003 Rule, EPA is currently in litigation over the provisions of the 2008 Rule. To date, no provisions of the 2008 Rule have been vacated or remanded, and it, along with the remaining portions of the 2003 Rule, remains controlling law. In support of that position, in May 2010, EPA published a guidance document designed to assist CAFO owners, operators, and permitting authorities in understanding and implementing the provisions of the 2008 Rule. With that background in mind, this part will discuss the provisions contained in the 2008 CAFO rule, the 2010 CAFO Rule implementation guidance document, and a quick review of the pending 2008 Rule litigation.

A. The Design of the 2008 Revised National Pollution Discharge Elimination System Permit Regulation and Effluent Limitations Guidelines for Concentrated Animal Feeding Operations

As discussed in Part III, the Waterkeeper court upheld all but very few provisions of the 2003 Rule. For example, among other things, the Waterkeeper court affirmed or otherwise did not address the definition of a CAFO, including: the inclusion of poultry operations; EPA’s interpretation of the “agricultural stormwater” exemption; the provisional contents of the NMP document; administrative compliance dates; and certain ELG

221. Revised NPDES, supra note 172.
222. Id. at 70,419.
224. While the Waterkeeper court did not discuss administrative compliance dates, on July 24, 2007, EPA did publish a revised timeline for compliance with CAFO, NPDES, and ELG standards. Revised Compliance Dates Under the National Pollution Discharge Elimination System Permit
standards.\textsuperscript{225} When EPA set out to generate the 2008 CAFO Rule, it was clear that it did not intend to modify any provisions except the ones vacated or remanded through the \textit{Waterkeeper} decision; EPA preserved all remaining 2003 provisions as controlling law.\textsuperscript{226}

The 2008 Rule addresses and revises six CAFO regulatory provisions. It modifies the CAFO “Duty to Apply” for a NPDES permit; it designs an optional certification program for CAFOs that do not discharge into waters of the United States; it clarifies how the agricultural stormwater exemption is to apply to unpermitted CAFOs; it incorporates the NMP submission and public participation requirements outlined in \textit{Waterkeeper}; it revises the NSPSs for Subpart D facilities; and it “responds to the court’s remand orders regarding water quality-based effluent limitations.”\textsuperscript{227} In addition, it reaffirms the applicability of the 2003 BAT-based effluent limitations for pathogens, and it reemphasizes that there will be no change to previously established administrative compliance dates.\textsuperscript{228} Each of these revisions will be discussed in turn.

1. The 2008 “Duty to Apply”

As required by \textit{Waterkeeper}, the 2008 Rule removes the mandatory duty for all large CAFOs to apply for an NPDES permit, including the “potential” to discharge language.\textsuperscript{229} In its place, the 2008 Rule states that CAFOs that “discharge or propose to discharge” from their production area or land application area must seek coverage under a NPDES permit.\textsuperscript{230} For a

\begin{footnotesize}
\begin{itemize}
\item 225. Revised NPDES, supra note 172, at 70,421.
\item 226. \textit{Id.} (“These unchallenged provisions are addressed in this final rule only to provide background information and are not in any way reopened or affected by this rulemaking.”).
\item 227. \textit{Id.} at 70,418, 70,421.
\item 228. \textit{Id.} at 70,418, 70,457.
\item 229. \textit{Id.} at 70,422.
\item 230. \textit{Id.} at 70,423; \textit{see also id.} at 70,425 (failing to establish a categorical presumption that all Large CAFOs discharge; instead, it “is evaluating various options for exploring the nature of discharge from Large CAFOs”).
\end{itemize}
\end{footnotesize}
CAFO that “proposes to discharge,” it must be “designed, constructed, operated, or maintained such that a discharge will occur.” The assessment of whether an operation discharges or proposes to discharge is to be done on a “case-by-case” basis, and should be based on an objective assessment by the CAFO owner or operator. An objective assessment includes, inter alia,

the proximity of the production area to waters of the U.S. [(hydrological conditions)], whether the CAFO is upslope from waters of the U.S. [(topographical conditions)], and climatic conditions. . . . [T]he type of waste storage system, storage capacity, quality of construction, and presence and extent of built-in safeguards [(design and construction)] . . . [as well as] [s]tandard operating procedures and level of maintenance . . . .

In applying the word “proposes,” EPA distinguishes it from the word “potential” by saying that “‘potential’ connotes the possibility that there might . . . be a discharge,” whereas an operation “proposes” to discharge if it will have an actual discharge. This analysis, which is highly fact-specific, “requires only CAFOs that actually discharge to seek permit coverage and clarifies that a CAFO proposes to discharge if based on an objective assessment [the operation] . . . will [discharge], not simply . . . that it might [discharge].” As a result, CAFOs must seek permit coverage at the time they propose to discharge.

In addition, EPA clarifies that “only those CAFO discharges authorized by a NPDES permit (or otherwise authorized by the statute), regardless of the volume or duration of the discharge, are allowed.” “EPA . . . believes that it is reasonable to expect unpermitted CAFOs to meet a zero discharge standard.” Because of this belief, the 2008 Rule finds that CAFOs designed for the “25-year, 24-hour storm should [not] be categorically excluded from the requirement to apply for a permit simply based on their design standard,” and that an operation will continue to be “designed,

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231. Id. at 70,423 (emphasis added).
232. Id. at 70,423.
233. Id. at 70,423–24.
234. Id. at 70,423.
235. Id.
236. Id.
237. Id.
238. Id. at 70,424.
239. Id. at 70,424–25 ("EPA disagrees that CAFOs designated for the 25-year, 24-hour storm should be categorically excluded from the requirement to apply for a permit simply based on their
constructed, operated, or maintained such that a discharge will occur” if any previous discharge route is left uncorrected.240 As such, not only will “continuous” discharges be considered a violation of the zero-discharge standard, but also operational discharges that are “unplanned or accidental,” “intermittent or sporadic,” or as the result of a twenty-five-year, twenty-four-hour storm, if such discharges occur without a valid NPDES permit or in violation of a valid NPDES permit.241

If a CAFO discharges before seeking a permit, it is in violation of Clean Water Act section 301(a).242 In addition, if the CAFO proposed to discharge prior to the discharge (i.e. it was “designed, constructed, operated, or maintained such that a discharge will occur”), then it is additionally in violation of the Duty to Apply for a permit.243 After the discharge has occurred, the CAFO must seek a permit unless, upon an objective assessment, it determines that it is no longer “designed, constructed, operated, or maintained” for a discharge to occur.244 EPA is clear, however, that a discharge, by itself, will not trigger the duty to apply for a permit.245 Instead, it is based on an objective assessment of whether a discharge will occur again in the future that triggers the duty.246 Only

design standard. EPA also believes that it is reasonable to expect unpermitted CAFOs to meet a zero discharge standard. The [Clean Water Act] is very clear that point source discharges from CAFOs are illegal unless the operator has applied for and obtained an NPDES permit. Thus, ‘zero discharge’ is the only standard to which EPA can hold unpermitted CAFOs under the [Clean Water Act]. . . . [A] violation of the prohibition against discharging without a permit occurs even if the discharge was not planned or intended.”).  

240. Id. at 70,424.

241. Id. at 70,423; see Gwaltney of Smithfield, Ltd. v. Chesapeake Bay Found., 484 U.S. 49 (1987) (holding that federal jurisdiction for citizen suits under the CWA did not extend to wholly past violations); Am. Canoe Ass’ n v. Murphy Farms, Inc., 412 F.3d 536, 539 (4th Cir. 2005) (holding that watersports and conservationist groups had established an “ongoing violation” of the CWA by hog farms and were therefore able to establish jurisdiction under the citizen suit provision of the CWA); Chesapeake Bay Found. v. Gwaltney of Smithfield, 890 F.2d 690, 693 (4th Cir. 1989) (“Intermittent or sporadic violations do not cease to be ongoing until the date when there is no real likelihood of repetition . . . .”).

242. Revised NPDES, supra note 172, at 70,424; see also 33 U.S.C. § 1311(a) (2006) (illustrating the sections in which discharging of a pollutant is lawful).

243. Revised NPDES, supra note 172, at 70,424 (emphasis added); see also 40 C.F.R. § 122.23(d)(1) (2006) (discussing who must seek coverage under a NPDES permit).

244. Revised NPDES, supra note 172, at 70,424.

245. Id.

246. Id.; See also id. at 70,428 (discussing that under the final rule any “CAFO that has discharged in the past would generally be expected to discharge in the future, and therefore be expected to obtain a permit, unless it has modified the design, construction, operation or maintenance in such a way as to prevent any discharges from occurring”).
CAFOs that discharge or propose to discharge have a duty to maintain permit coverage.247

2. The Optional Certification Program

If a CAFO determines, based on an objective assessment, that it does not discharge or propose to discharge, the 2008 Rule also offers the option for the CAFO to “certify to the permitting authority that it is designed, constructed, operated, and maintained” such that a discharge will not occur.248 As a voluntary certification, this option

is not subject to review by the permitting authority in order for it to become effective and the permitting authority is not required to make the certification available to the public for comment because the certification is not a permit application for which review is required under section 402 of the CWA.249

If, after receiving certification, a CAFO begins discharging or proposes to discharge, then it must remove itself from the certification program and seek coverage under an NPDES permit.250 If it knowingly discharges without seeking a permit, it will be liable “for two violations, one associated with the discharge itself and another violation for failing to apply for a permit for authority to discharge.”251 However, if a certified operation unwittingly discharges, it will only be liable for discharging without a permit (not additionally for failure to apply for a permit), unless the permitting authority can show that it did propose to discharge in advance of the discharge.252 Any discharge will terminate certification,253 but a CAFO

247. Id. at 70,425, 70,427 (“Eligibility for certification means meeting . . . (1) An objective evaluation which shows that the CAFO’s production area is designed, constructed, operated, and maintained so as not to discharge, (2) development and implementation of an NMP to ensure no discharge . . . , and (3) maintenance of the documentation required for certification either on site, at a nearby office, or where it can be made readily available to the permitting authority upon request.”) see also id. at 70,430 (“the submission to the Director must include: (1) The CAFO owner or operator’s name, address and phone number; (2) information regarding the CAFOs location, including latitude and longitude; (3) a description of the basis for the CAFO’s certification . . . ; (4) the certification statement set forth in 40 CFR 122.23(i)(3)(iv); and (5) an official signature that meets the signatory requirements. . . . The signed certification makes the CAFO legally responsible for its representations to the Director regarding the design, construction, operation, and maintenance of the CAFO.”).

248. Id. at 70,426.

249. Id.

250. Id. at 70,433–44.

251. Id. at 70,426.

252. Id. at 70,427.
can reapply for and re-obtain certification if it can show that it is no longer discharging or proposing to discharge.\textsuperscript{254}

If not terminated through another means, a discharge certification will last for a maximum of five years.\textsuperscript{255} Alternatively, a CAFO can withdraw its discharge certification at any time without providing reasoning for the withdrawal.\textsuperscript{256} Once a certification is withdrawn, or ceases to be valid, the CAFO can no longer rely on the certification if a subsequent enforcement action is brought against the operation.\textsuperscript{257} Finally, the voluntary discharge certification option is only available if the permitting authority has adopted the voluntary program.\textsuperscript{258}

3. Application of the Agricultural Stormwater Exemption to Unpermitted CAFOs

Despite the fact that the \textit{Waterkeeper} court affirmed EPA’s interpretation of the agricultural stormwater exemption,\textsuperscript{259} EPA, through the 2008 Rule, further clarifies the exemption by stating that the agricultural stormwater exemption only applies to discharges from the land application area,\textsuperscript{260} and that Large CAFOs will not be required to seek NPDES permit coverage for discharges that only occur as the result of agricultural stormwater.\textsuperscript{261} As such, EPA finds that the exemption can be applied to both permitted and unpermitted operations.\textsuperscript{262} For a permitted CAFO to show the applicability of the agricultural stormwater exemption, it can rely on compliance with the practices approved through its NPDES permit and its site-specific NMP.\textsuperscript{263}

To avail itself of the agricultural stormwater exemption, an unpermitted CAFO must show that “precipitation-related discharges from its land

\begin{itemize}
\item 253. \textit{Id.}
\item 254. \textit{Id.} at 70,433.
\item 255. \textit{Id.} at 70,432.
\item 256. \textit{Id.}
\item 257. \textit{Id.} at 70,433.
\item 258. \textit{Id.} at 70,457 ("States are not required to adopt the provisions for no discharge certification [at this time . . . .").
\item 259. \textit{Id.} at 70,434.
\item 260. \textit{Id.}
\item 261. \textit{Id.} at 70,434, 70,436 ("EPA does not agree that only CAFOs with NPDES permits should be allowed to claim that discharges from their land application areas are agricultural stormwater discharges. . . . The assessment of whether a discharge is exempt as agricultural stormwater or a point source discharge subject to permitting requirements is not part of the permitting process, but rather precedes it.").
\item 262. \textit{Id.} at 70,434–35.
\item 263. \textit{Id.} at 70,434.
\end{itemize}
application areas” only occur as the result of the application of “manure, litter, or process wastewater to land under its control in accordance with nutrient management practices that ensure appropriate agricultural utilization of the nutrients in the manure, litter, or process wastewater.”264 In addition, all application processes must be executed in compliance with “site-specific nutrient management practices” and “technical standards . . . intended to ensure the appropriate agricultural utilization of nutrients.”265

To establish applicability, an unpermitted CAFO does not need to keep the same documentation or to comply with the same technical standards as a permitted CAFO, though it is recommended.266 However, it must document compliance with “appropriate” nutrient management standards, and it “may have to demonstrate both the appropriateness of alternative standards and that its practices conformed to them in order for its discharges to qualify for the . . . exemption.”267 “[I]t is the CAFO’s responsibility to demonstrate that such alternative standards do, in fact, ‘ensure appropriate agricultural utilization of the nutrients in the manure, litter, or process wastewater . . . .’”268 No discharges other than agricultural stormwater discharges from the land application area will be excused.269

4. The Compliance Schedule

Generally, the 2008 CAFO Rule retains the compliance dates as detailed in the 2007 Revised Compliance Dates Under the National Pollution Discharge Elimination System Permit Regulations and Effluent Limitations Guidelines and Standards for Concentrated Animal Feeding Operations.270 The only major amendment is that, under the 2008 Rule, “authorized States have up to one year to revise, as necessary, their NPDES regulations to adopt the requirements of this rule, or two years if statutory changes are needed.”271

264. Id. at 70,435.
265. Id.
266. Id.
267. Id.
268. Id. at 70,436.
269. Id. (“[O]nly precipitation-related discharges from its land application areas are agricultural stormwater discharges . . . .”).
270. Id. at 70,457.
271. Id.
5. Nutrient Management Plan Submission and Public Participation Requirements

Under the 2008 Rule, EPA is revising its NMP related provisions to provide for:

[1] Receipt and review of the NMP by the permitting authority prior to issuing an individual permit or granting coverage under a general permit; [2] Adequate public participation prior to issuing an individual permit or granting coverage under a general permit; [3] Incorporation of the terms of the NMP into the NPDES permit; and [4] The process to address changes to the NMP once permit coverage is granted . . . .

First, the 2008 Rule requires all CAFO NPDES permit applicants to submit an NMP as part of his/her permit application. The NMP document must, to the extent applicable, include all of the conditions listed at 40 C.F.R. § 122.42(e). Upon receiving the application, including the operation’s full NMP document, the permitting authority must “review the application . . . to ensure that it meets the requirements of the regulations, and for general permits, the requirements of the general permit.”

If the NMP is insufficient, the CAFO owner or operator must provide supplementation to the document until it is complete and sufficient. If the NMP is sufficient, the permit application, along with the CAFO-specific NMP and the relevant terms of the NMP to be incorporated into the permit (“terms of the NMP”), must be made available to the public for review and

272. Id. at 70,437, 70,455 (“[E]stablishing additional annual report requirements . . . mandating all permitted CAFOs to include in their annual reports the actual crop(s) planted and actual yield(s) for each field, the actual nitrogen and phosphorus content of the manure, litter, and process wastewater, and the amount of manure, litter, or process wastewater applied to each field during the previous 12 months.”).

273. Id. at 70,437–38 (“Nothing in this rule prohibits permitting authorities from accepting permit application information in batches, provided that the application information and submission process satisfies all applicable requirements.”).

274. Id. at 70,438 (“[F]acilities that do not land apply manure, litter, or process wastewater, but transfer all manure, litter, or process wastewater to other persons, are required . . . to provide the ‘most current nutrient analysis’ to the recipient.”); 40 C.F.R. § 122.42(e) (2006).

275. Revised NPDES, supra note 172, at 70,438.

276. Id. at 70,439 (“[I]f, upon review, the permitting authority determines that additional information is necessary to complete the NOI or clarify, modify, or supplement previously submitted material, the Director will notify the CAFO owner or operator and request that the appropriate information be provided.”).
comment.\textsuperscript{277} Once the information is accessible, the public must be provided the opportunity to request a hearing on the application, the NMP, or the terms of the NMP.\textsuperscript{278} Thereafter, “it is the permitting authorities’ responsibility to ensure that comments are properly addressed and the final permit terms are incorporated.”\textsuperscript{279} “[I]f after the public notice period and the conclusion of any hearings, the [program] Director decides to authorize discharge under the permit, the permitting authority must notify the CAFO and inform the public.”\textsuperscript{280}

The “terms of the NMP” must include, at a minimum, the provisions detailed at 40 C.F.R. § 122.42(e)(5).\textsuperscript{281} As described in that section, “the terms of the NMP ‘are the information, protocols, best management practices, and other conditions’ identified in a CAFO’s nutrient management plan and determined by the permitting authority to be necessary to meet the [regulatory] requirements.”\textsuperscript{282} For example, necessary “terms of the NMP” include rates of application,\textsuperscript{283} “the fields the CAFO plans to use for land application. . . . [And] any timing limitations . . . that would make fields unavailable for land application at certain times or under certain conditions.”\textsuperscript{284} While “EPA does not agree that . . . all of the information in the NMP [necessarily] constitutes enforceable terms,” it does recognize that the full NMP can represent the enforceable “terms of the NMP” to be incorporated into a permit.\textsuperscript{285}

With regard to modification, “the permit does not need to be modified for all operating changes.”\textsuperscript{286} A permit, including the NMP, only needs to be officially modified if the change to the NMP “would constitute a substantial

\begin{itemize}
\item \textsuperscript{277} Id. at 70,439–40 (“[T]he Director has discretion as to how best to provide the requisite public notification in the general permit context. . . . [T]he Director also has discretion to establish an appropriate period of time for public review of the NOI and draft terms of the NMP proposed to be incorporated into the permit.”).
\item \textsuperscript{278} Id. at 70,440.
\item \textsuperscript{279} Id.; see also id. at 70,451 (“[I]f coverage is granted, the [program] Director must incorporate the relevant terms of the NMP into the general permit . . . and inform the CAFO owner or operator and the public that coverage has been authorized and of the applicable terms and conditions of the permit.”).
\item \textsuperscript{280} Id. at 70,441.
\item \textsuperscript{281} Id. at 70,443.
\item \textsuperscript{282} Id.
\item \textsuperscript{283} Id. at 70,444 (providing in the 2008 Rule “two alternative approaches for expressing the terms of the nutrient management plan with respect to rates of application,” the “linear approach” and the “narrative rate approach”). For a better understanding of these two approaches, see id. at 70,444–51.
\item \textsuperscript{284} Id. at 70,444.
\item \textsuperscript{285} Id. at 70,443; see also id. at 70,451 (indentifying when changes to NMPs many be required and when NMP terms may be incorporated into a permit).
\item \textsuperscript{286} Id. at 70,451.
\end{itemize}
change to the terms of the facility’s NMP.\textsuperscript{287} If a permit or NMP requires revision, the CAFO owner or operator must submit the revised NMP to the permitting authority for review.\textsuperscript{288} If the change is “substantial,” the revision must be made available to the public for meaningful review.\textsuperscript{289} Thereafter, if appropriate, the permitting authority is to incorporate all revised terms into the permit.\textsuperscript{290}

In applying these standards, the 2008 Rule confirms that the applicable ELGs for CAFO operations are:

The discharge of manure, litter, or process wastewater into waters of the U.S. [is prohibited] from the production areas of CAFO except in limited circumstances. A discharge is allowed only if an existing, permitted CAFO has a properly designed, constructed, and operated storage structure with the capacity to contain all manure, litter, and process wastewater associated with the facility as well as the runoff and direct precipitation from a 25-year, 24-hour rainfall event. . . . [In addition,] a Large CAFO that land applies manure, litter, or process wastewater must do so in accordance with several BMPs: A nutrient management plan that includes the determination of application rates for manure, litter, and process wastewater; a field-specific assessment of the potential for nitrogen and phosphorus transport from the field to surface waters; manure and soil sampling; and setback requirements.\textsuperscript{291}

\begin{itemize}
\item \textsuperscript{287} Id. ("Substantial changes include: (1) [a]ddition of new land application areas not previously included in the CAFO’s NMP; (2) any changes to the maximum field-specific annual rates of application or to the maximum amounts of nitrogen and phosphorus derived from all sources for each crop, as expressed in accordance with, respectively, the linear approach or the narrative rate approach; (3) addition of any crop not included in the terms of the CAFO’s NMP and corresponding field-specific rates of application; and (4) changes to field-specific components of the CAFO’s NMP, where such changes are likely to increase the risk of nitrogen and phosphorus transport from the field to waters of the U.S.").
\item \textsuperscript{288} Id. at 70,455.
\item \textsuperscript{289} Id. at 70,453; see also id. at 70,454 ("The Director must respond to all significant comments received during the comment period . . . , and require the CAFO owner or operator to further revise the nutrient management plan if necessary.").
\item \textsuperscript{290} Id. at 70,454.
\item \textsuperscript{291} Id. at 70,464.
\end{itemize}
6. Water-Quality Based Effluent Limitations, New Source Performance Standards for Subpart D Facilities and the Best Conventional Pollution Control Technology for Fecal Coliform

The 2008 Rule clarified how WQBELs are to apply to CAFOs. It explained that “discharges from CAFOs that are not exempt from CWA permitting requirements as agricultural stormwater discharges are subject to NPDES requirements, including WQBELs.” These WQBELs can apply to both “land application areas under the control of a CAFO” and to discharges from “a CAFO’s production area.” The application of WQBELs is usually case specific, as determined by the permit writer.

In the 2008 Rule, EPA made three primary changes to the NSPS for Subpart D facilities. First, EPA maintains the Subpart D “total” discharge NSPS, and removes the provision allowing operations to have a “100-year, 24-hour rain event containment structure.” Second, “EPA has deleted the remained provisions that authorized two alternatives for compliance with NSPS requirement for no discharge of manure, litter, or process wastewater into waters of the U.S. from the production area.” Finally, “EPA is promulgating a new provision that would allow a CAFO using an open surface manure storage structure to request the NPDES permitting authority to establish site-specific effluent limitations for its NPDES permit that incorporate the NSPS no discharge requirement.

With regard to the BCT for pathogens, EPA “affirmatively” finds “that the [BCT] limitations it adopted in 2003 do, in fact, represent the best conventional control technology limitations for fecal coliform.” Therefore, resulting from an assessment of “various conventional pollutant removal technologies,” EPA believes that “there are no available and economically achievable technologies that are cost reasonable that would

\[\text{Id. at 70,458.}\]
\[\text{Id. at 70,458–59.}\]
\[\text{Id. at 70,459.}\]
\[\text{Id. at 70,459–60.}\]
\[\text{Id. at 70,459.}\]
\[\text{Id. at 70,463; see also id. at 70,463 n.7 (“As the Second Circuit recognized, the CWA lists only one pathogen, fecal coliform, as a conventional pollutant for which BCT limitations are required. . . . [T]he CWA provides that EPA may identify additional pollutants as conventional pollutants. EPA has identified only one additional pollutant, oil and grease as a conventional pollutant [sic]. Thus, the only pathogen subject to the Second Circuit remand is fecal coliform.”).}\]
\[\text{Id. at 70,463.}\]
result in greater removal of fecal coliform than the technologies on which EPA based the 2003 best practicable control technology currently available (BPT) and BCT effluent limitations guidelines (ELG).”

B. The Current Posture of the 2008 Rule

Since publication on November 20, 2008, the 2008 Rule has been challenged by many of the same petitioners, both industry and environmental, that challenged the 2003 Rule. On January 16, 2009, all petitioner challenges were consolidated for review in front of the United States Court of Appeals for the Fifth Circuit. On May 25, 2010, environmental petitioners, including Natural Resources Defense Council, Sierra Club, and Waterkeeper Alliance, reached settlement with EPA on their challenge to the 2008 Rule. Under that settlement, EPA must produce a publicly available guidance document that is designed to assist permitting authorities in implementing the National Pollution Discharge Elimination System (“NPDES”) permit regulations and Effluent Limitation Guidelines and Standards for concentrated animal feeding operations (“CAFO”) by specifying the kinds of operations and factual circumstances that EPA anticipates may trigger the duty to apply for permits as discharging or proposing to discharge.

In addition, EPA is to propose a rulemaking process pursuant to section 308 of the Clean Water Act to require CAFOs to submit to EPA certain, defined information regarding their operation and practices. Information initially collected pursuant to any finalized rulemaking, except for information “that constitutes methods, processes, or trade secrets entitled to protection as confidential information” is to be released to the public thereafter.

303. Id.
305. See generally Nat’l Pork Producers Council v. EPA, No. 08-61093, 2010 WL 3693599 (5th Cir. Jan. 16, 2009) (seeking review of EPA’s final rule for revised NPDES permit regulation and effluent limitations guidelines for CAFOs, known as the “2008 CAFO Rule”, which was promulgated in response to the decision in Waterkeeper Alliance, Inc. v. EPA, 399 F.3d 486 (2d. Cir. 2005)).
307. Id. at 2.
308. Id. at 2–3; see also 33 U.S.C. § 1318(b) (2006) (requiring records, reports, or information related to effluent data and limitation to be made available to the public).
309. Settlement Agreement at 4, Nat’l Pork Producers Council v. EPA, No. 08-61093 (5th Cir. argued Oct. 4, 2010).
In accordance with the settlement, on May 28, 2010, EPA released the Implementation Guidance on CAFO Regulations – CAFOs that Discharge or Are Proposing to Discharge. The guidance acts to ensure an accurate and appropriate implementation and compliance with the 2008 Rule in two primary ways. First, the guidance document supports and provides further substantiation for the clarification of the 2008 EPA standard requiring CAFOs that actually discharge, including CAFOs that are currently discharging and CAFOs that are “designed, constructed, operated, or maintained such that a discharge will occur,” to apply for an NPDES permit. Second, the guidance assists both CAFOs and permitting authorities in understanding what constitutes an “objective assessment” under the 2008 Rule.

On March 15, 2011, the Fifth Circuit ruled on the industry challenge to three provisions of the 2008 Rule: the “duty to apply” standard, the regulatory imposition of liability against a CAFO that fails to apply for an NPDES permit within a timely manner, and the continued regulation of the CAFO’s land application area. Addressing the “duty to apply” standard first, the court vacated the provision of the standard requiring all CAFOs that “propose to discharge” to apply for a permit. However, the court did find that EPA can impose a duty to apply on CAFOs that are discharging. Second, the court vacated the provision in the 2008 Rule that imposes liability on a CAFO for failure to apply for an NPDES permit. Finally, the court upheld the provisions of the 2008 Rule that apply to the CAFO land application area.

As of this writing, the Fifth Circuit holding is subject to change via rehearing or appeal. Should the holding remain as controlling law, however, the current Clean Water Act CAFO regulations will again need to be revised to conform to this holding. In addition, relevant portions of the guidance document will have to be revised as necessary.

310. See IMPLEMENTATION GUIDANCE ON CAFO REGULATIONS, supra note 223 (elaborating on and discussing the 2008 Rule requirements).
311. Id. at 1; see also 40 C.F.R. § 122.23(d) (2006) (discussing who must seek coverage under a NPDES permit).
312. IMPLEMENTATION GUIDANCE ON CAFO REGULATIONS, supra note 223, at 2–4.
314. Id. at *15.
315. Id.
316. Id.
317. Id.
CONCLUSION

As is clear from its divisive history, the federal regulation of CAFO-produced pollutants under the Clean Water Act has been, and continues to be, complex. Yet, the basic principle behind their regulation remains the same: CAFOs are categorized as point sources under the Clean Water Act, as such, they must obtain a valid NPDES permit to discharge any pollutants into waters of the United States, except in accordance with the agricultural stormwater exemption. To interpret that principle any other way would not only contravene the plain language of the Act, but it would also jeopardize the Act’s goal of “restoring and maintaining the chemical, physical, and biological integrity of the Nation’s waters” by eliminating the discharge of pollutants from point sources into those waters.

If upheld, the recent Fifth Circuit ruling could make it very difficult for the EPA to achieve this formidable goal. However, as the Waterkeeper court recognizes, “the EPA has marshaled evidence suggesting that . . . a prophylactic measure may be necessary to effectively regulate water pollution from Large CAFOs, given that Large CAFOs are important contributors to water pollution and that they have, historically at least, improperly tried to circumvent the permitting process.” Because of this, reasonable compliance with the Clean Water Act may demand that future regulations include a regulatory presumption that all large CAFO operations, or certain categories of large CAFO operations, discharge pollutants into waters of the United States.

Prior to any additional regulatory changes, it is important to note that numerous current federal and state actions indicate an increased governmental awareness of the need to control the discharge of pollutants from CAFOs to waters of the United States. For example, in defending the 2008 Rule and in creating a substantive guidance document, EPA is indicating its support for a strong and effective CAFO NPDES program.

319. Id. §§ 1311(a), 1342.
320. Id. § 1251(a).
Consequently, while current information indicates that CAFOs continue to “adversely impact all major environmental media, including water, soil, and air,” and to cause a diverse “array of adverse human health effects,” EPA and, in the alternative, Congress is capable of adequately addressing and resolving the negative impacts of CAFO-related production on human health and the environment.

323. Halden & Schwab, supra note 6, at 1.
A COMPARISON OF THE GENERAL PROVISIONS FOUND IN RIGHT-TO-FARM STATUTES

Rusty Rumley*

TABLE OF CONTENTS

Introduction .................................................................................................................. 327
I. Common Provisions of Right-to-Farm Laws ......................................................... 328
   A. General Policy Statement .............................................................................. 329
   B. Definition of “Agriculture” and “Agricultural Activities” to Be Protected .................................................................................. 331
   C. Limitation on Protected Actions ............................................................ 333
   D. Date of Operation and the Changes That Would Reset the Date (Statutes of Repose) ........................................................................ 336
   E. Prohibitions Against Other Governmental Regulation ......................... 341
   F. Attorney Fees and Other Costs ................................................................ 346
Conclusion .................................................................................................................. 350

INTRODUCTION

As the population of the United States’ urban centers has continued to grow, the boundaries of these urban centers have “sprawled” out into areas that have been traditionally maintained as agricultural.1 States saw the

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1. See Margaret R. Grossman & Thomas G. Fischer, Protecting the Right to Farm: Statutory Limits on Nuisance Actions Against the Farmer, 1983 WIS. L. REV. 95, 97 (1983), in which the authors state:

   In rural America today, the “parlor” is rapidly encroaching on the barnyard. Since the end of World War II, the increasingly rapid conversion of land from agricultural to nonagricultural uses has enticed many urban dwellers into rural areas, where these new neighbors may be surprised and offended by some common elements of farm life . . . . Some new rural residents, perceiving these elements as undesirable, have attempted to eliminate them by initiating nuisance
conflicts occurring between new residents and agricultural operations, and in response to the growing problem began implementing what would become known as right-to-farm statutes. All fifty states have enacted some type of right-to-farm law, which provides liability protection from nuisance lawsuits. While there are many ways to break down right-to-farm statutes across the country, a simple way to view the breakdown is to divide them into “traditional” right-to-farm-statute states and those states that use some form of zoning to protect agricultural areas. Traditional right-to-farm statutes base their protection on the fact that the agricultural activity, for some statutorily determined length of time, existed before the aggrieved party filed suit, and that the agricultural operation is following “generally accepted” farming practices or falls under an expressly protected activity. The other broad category covers states that use the power to zone in order to protect areas in which they wish to preserve agricultural land.

This article will focus more on the “traditional” right-to-farm statutes rather than those states that choose to use zoning as their primary means of protecting agricultural property. However, even the traditional types of statutes vary throughout the country in the activities that they cover and the breadth of the protection that they provide. Plaintiffs facing the protection provided by these statutes have tried to avoid the statutes by suing under different causes of action, questioning whether specific acts were protected under the statutes or even challenging the statutes on constitutional grounds.

I. COMMON PROVISIONS OF RIGHT-TO-FARM LAWS

Right-to-farm laws vary throughout the country, but there are some provisions that are relatively common in the statutes. While these

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2. See id. at 97–98 (stating “[o]fficials at all levels of government have become increasingly concerned with the loss of farmland to nonagricultural uses. State governments, in particular, have attempted to stem farmland conversion through a number of approaches. One approach, which has gained in popularity in recent years, is the enactment of “right to farm” statutes”).
4. Id. at 128.
5. Id. at 128–29.
6. Id. at 129.
provisions may appear similar, it is important for an attorney to carefully examine the language of the statute because subtle differences in the statutes often determine how a case will be resolved. Regardless of the statute, there are some provisions that are common to most right-to-farm statutes across the country. The general policy statement, the definition of “agriculture” and “agricultural activities,” the limitations on protected actions, prohibitions against local government interference, the awarding of costs in certain cases, the length of time that the operation must exist before qualifying for immunity, and changes in the operation that will reset this limit are some of the more commonly found provisions in right-to-farm statutes. All states have some or all of these general provisions in some form; however, many states add unique twists that can only be found by carefully examining not only the right-to-farm statute, but other statutes that may be germane to the issue.

A. General Policy Statement

Most states have some form of a general policy statement in their right-to-farm statute. Typically this statement will set forth what the state legislature intends to accomplish with the statute. Even with something as generic as a general policy statement, there remains a wide variation between the states, ranging from the short and direct statement of New Mexico to the much more complicated Iowa policy statement. Whether

7. Id. at 127–29.
8. N.M. STAT. ANN. § 47-9-2 (LexisNexis 2004) provides that:
   The purpose of the Right to Farm Act [47-9-1 NMSA 1978] is to conserve, protect, encourage, develop and improve agricultural land for the production of agricultural products and to reduce the loss to the state of its agricultural resources by limiting the circumstances under which agricultural operations may be deemed a nuisance.
9. Under Iowa law:
   It is the intent of the general assembly and the policy of this state to provide for the orderly use and development of land and related natural resources in Iowa for residential, commercial, industrial, and recreational purposes, preserve private property rights, protect natural and historic resources and fragile ecosystems of this state including forests, wetlands, rivers, streams, lakes and their shorelines, aquifers, prairies, and recreational areas to promote the efficient use and conservation of energy resources, to promote the creation and maintenance of wildlife habitat, to consider the protection of soil from wind and water erosion and preserve the availability and use of agricultural land for agricultural production, through processes that emphasize the participation of citizens and local governments. The general assembly recognizes the importance of preserving the state’s finite supply of agricultural land. Conversion of farmland to urban development, and other nonfarm uses, reduces future food production capabilities and may ultimately undermine agriculture as a major economic activity in Iowa.
simple in nature or complex, the general policy statement can be an important part of any right-to-farm statute.

One state that does not have a general policy statement is California.\textsuperscript{10} In 2002, a case was concluded in California where the attorney of the plaintiff tried to avoid the California right-to-farm statute by suing under the theory of trespass.\textsuperscript{11} Right-to-farm statutes are specific in the protection that they provide, and California, as well as every other state, provides a shield only against nuisance litigation.\textsuperscript{12} In \textit{Rancho Viejo L.L.C. v. Tres Amigos Viejos L.L.C.}, the plaintiff was a developer who was suffering from water damage.\textsuperscript{13} The damage was being caused by irrigation runoff from an avocado farm located uphill from the property that was being developed.\textsuperscript{14} The avocado grove had been in continuous production for over thirty years, which more than satisfied California’s right-to-farm statute requirement of the operation being in existence for more than three years.\textsuperscript{15} The irrigation of the avocado grove was accepted as an agricultural activity.\textsuperscript{16} Because of the right-to-farm statute protection against nuisance, the developer argued an alternative theory, that the suit should be maintained under the tort of trespass.\textsuperscript{17} His reasoning was that traditional nuisance actions were caused by “noise, odor, dust or ‘items otherwise related to the enjoyment of one’s land’ as opposed to activities causing an adjoining landowner property damage as a result of a physical invasion.”\textsuperscript{18} The court rejected this argument and stated that the legislative history showed the intent to prevent lawsuits such as these, and that the actions of nuisance and trespass were

\begin{quote}
It is the intent of the general assembly to provide local citizens and local governments the means by which agricultural land may be protected from nonagricultural development pressures. This may be accomplished by the creation of county land preservation and use plans and policies, adoption of an agricultural land preservation ordinance, or establishment of agricultural areas in which substantial agricultural activities are encouraged, so that land inside these areas or subject to those ordinances is conserved for the production of food, fiber, and livestock, thus assuring the preservation of agriculture as a major factor in the economy of this state.
\end{quote}

\textsc{iowa code ann.} § 352.1 (West 2001).
\textsc{cal. civ. code} § 3482.5 (West 1997).
\textsuperscript{10} Rancho Viejo, L.L.C. v. Tres Amigos Viejos, L.L.C., 123 Cal. Rptr. 2d 479, 481–83 (Cal. Ct. App. 2002); see also John Larkin, Inc. v. Marceau, 2008 VT 61, ¶ 1, 6–7, 184 Vt. 207, 959 A.2d 551 (involving a developer who sued neighboring landowners for trespass because of pesticide drift to bypass the protections provided by the Vermont right-to-farm statute).
\textsuperscript{11} § 3482.5(a)(1)–(2).
\textsuperscript{12} \textit{Id.}
\textsuperscript{13} \textit{Id.} at 482–84.
\textsuperscript{14} \textit{Id.} at 486.
\textsuperscript{15} \textit{Id.} at 483.
\textsuperscript{16} \textit{Id.} at 484.
very similar under California law, such that the protection against nuisance liability would also prevent a tort action brought under trespass.\(^{19}\)

Successful attorneys are creative by nature and can find ambiguities in almost any statute, no matter how well-drafted the legislation appears to be. Statements of general purpose allow the legislature to express how they wish the statute to be interpreted in the future when the protections provided by the right-to-farm statutes are challenged in the courts.

\section*{B. Definition of “Agriculture” and “Agricultural Activities” to Be Protected}

Every right-to-farm statute either contains definitions or references another code section that contains definitions which are then incorporated into the right-to-farm statute.\(^{20}\) This is important because the U.S. agricultural industry is so diverse in nature, covering not only all of the food and fiber produced in the United States, but also the input suppliers, processors, and distributors of those products.\(^{21}\) Because agriculture can encompass such a wide variety of individuals and businesses, the legislators of each state adopted a definition of “agriculture” and “agricultural activities” so that the protection provided by right-to-farm statutes would only extend to the intended beneficiaries.

One of the general theories on why right-to-farm laws should exist is the “coming to the nuisance defense.”\(^{22}\) However, some states have placed limits on the protection given to some agricultural operations under this theory.\(^{23}\) This limitation is accomplished through several different means, one of which is the state defining what constitutes a substantial enough change in an operation to restart the time period (if the state has one).\(^{24}\) The definitions are one likely location for limitations on the scope of these protective statutes.

The state definitions vary considerably on what they cover. A good example can be found in the definitions of Oklahoma’s right-to-farm

\begin{itemize}
  \item \textit{Id.} at 487–89.
  \item \textit{Id.} at 1710.
  \item \textit{Id.} at 1710–12.
\end{itemize}
statute.\textsuperscript{25} Oklahoma has amended its right-to-farm statute (the new changes went into effect on November 1, 2009), but the differences between the definition of “agricultural activities” found in the current version and the amended version greatly expand the scope of what is shielded by the act.\textsuperscript{26} The previous Oklahoma right-to-farm statute stated that:

“Agricultural activities” shall include, but not be limited to, the growing or raising of horticultural and viticultural crops, berries, poultry, livestock, grain, mint, hay, dairy products and forestry activities.\textsuperscript{27}

This definition covers the raising of livestock and crops by almost every type of farmer within the state; however, the new definition was significantly expanded.\textsuperscript{28} The new definition (words in \textit{italics} are the new language) states that:

“Agricultural activities” shall include \textit{includes}, but is not be limited to, the growing or raising of horticultural and viticultural crops, berries, poultry, livestock, \textit{aquaculture}, grain, mint, hay, dairy products and forestry activities. “Agricultural activities” also includes improvements or expansion to the activities provided for in this paragraph including, but not limited to, new technology, pens, \textit{barns}, fences, and other improvements designed for the sheltering, restriction, or feeding of animal or aquatic life, for storage of produce or feed, or for storage or maintenance of implements. If the expansion is part of the same operating facility, the expansion need not be contiguous.\textsuperscript{29}

The new definition brings aquaculture under the protection of the right-to-farm statute while also allowing for the growth and modernization of existing facilities without the risk of resetting the two year statute of repose that the state of Oklahoma requires before an agricultural operation qualifies for protection.\textsuperscript{30} The expansion in the protection provided for the statute appears to be vast, as it would allow for virtually unlimited growth of the operation without sacrificing any of the protections. There may be unforeseen legal consequences to such language in right-to-farm statutes.

\textsuperscript{25} OKLA. STAT. ANN. tit. 50, § 1.1 (West 2008 & Supp. 2010).
\textsuperscript{26} H.B. 1482, 52nd Leg., 1st Reg. Sess. (Okla. 2009).
\textsuperscript{27} § 1.1.
\textsuperscript{28} H.B. 1482.
\textsuperscript{29} \textit{Id.} (emphasis added).
\textsuperscript{30} \textit{Id.}
For example: Suppose a family raises five to ten show pigs for the children of the family to show in the local fairs during the fall. They do this for ten years (until the children are unable or unwilling to continue) and at the end of the ten years the parents decide that building a commercial hog operation would be the most economical use of their property. Would statutory language similar to that in the new Oklahoma legislation allow for this change? Is this a change in the operation itself (switching from raising a few show pigs to a commercial hog operation) or is this merely an expansion since the family is still engaged in raising swine, albeit for different reasons?

Oklahoma addresses this exact issue in another section of their amended right-to-farm act. Section E states that: “this section does not relieve agricultural activities of the duty to abide by state and federal laws, including, but not limited to, the Oklahoma Concentrated Animal Feeding Operations Act and the Oklahoma Registered Poultry Feeding Operations Act.” In the case of Oklahoma, the state has specifically dealt with confined animal feeding operations’ ability to use the protections provided by the right-to-farm law. Other states, however, vary considerably in their statutory language.

The definitions provided for or referenced in a state’s right-to-farm statute are critical in determining the scope of the protections available. An attorney must be able to determine what activities are protected within the state and what actions may change or revoke that protection.

**C. Limitation on Protected Actions**

While the definitions of what are protected by the right-to-farm statutes are typically broad and inclusive, many states include language that places some restrictions on the actions of those who seek protection. While the language may vary, the principles behind the language are often similar. For example, the Nebraska right-to-farm statute states that:

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31. Id.

32. Id.


A farm or farm operation or a public grain warehouse or public grain warehouse operation shall not be found to be a public or private nuisance if the farm or farm operation or public grain warehouse or public grain warehouse operation existed before a change in the land use or occupancy of land in and about the locality of such farm or farm operation or public grain warehouse or public grain warehouse operation and before such change in land use or occupancy of land the farm or farm operation or public grain warehouse or public grain warehouse operation would not have been a nuisance.35

The Nebraska right-to-farm statute is relatively simple and to the point. Was the agricultural operation a nuisance before the change in the surrounding area? If the operation was not a nuisance before, then the “operation shall not be found to be a public or private nuisance.”36 The next section in the Nebraska statute goes on to state that the right-to-farm statute “shall not affect the application of state and federal statutes,” but it places no other limitations on obtaining the protection provided for by the statute.37 An example of more stringent limiting language can be found in the Vermont right-to-farm statute. Vermont bases the protection afforded by the statute on compliance with statutes, the following of “good agricultural practices,” and the severity of the nuisance at issue.38 Furthermore, the protection provided by the statute is a rebuttable presumption, rather than an absolute protection.39 The Vermont right-to-farm statute states that:

(a)(1) Agricultural activities shall be entitled to a rebuttable presumption that the activity does not constitute a nuisance if the agricultural activity meets all of the following conditions:

(A) it is conducted in conformity with federal, state, and local laws and regulations (including accepted agricultural practices);

(B) it is consistent with good agricultural practices;

36. Id.
37. Id. § 2-4404.
38. VT. STAT. ANN. tit. 12, § 5753 (West 2004).
39. Id. § 5753(a)(1).
(C) it is established prior to surrounding nonagricultural activities; and

(D) it has not significantly changed since the commencement of the prior surrounding nonagricultural activity.

(2) The presumption that the agricultural activity does not constitute a nuisance may be rebutted by a showing that the activity has a substantial adverse effect on health, safety, or welfare, or has a noxious and significant interference with the use and enjoyment of the neighboring property.

(b) Nothing in this section shall be construed to limit the authority of state or local boards of health to abate nuisances affecting the public health.40

Unlike Nebraska, the state of Vermont requires that an agricultural operation must comply with not only federal and state laws, which the right-to-farm statutes in most states require or remain silent on, but also with “local laws and regulations.”41 This is in contrast to several other states that have expressly forbidden local governments from passing laws and ordinances that may have a negative effect on local agricultural operations.42

Determinations of what is considered to be a “good agricultural practice” and what constitutes “a substantial adverse effect” on the public health and safety are largely left up to the interpretation of the courts. Likewise, the Vermont statute does allow for nuisance suits if the actions of the agricultural operation have a “noxious and significant interference with the use and enjoyment of the neighboring property.”43 Regardless of the eventual decision, the statute provides a landowner with the means of bringing a nuisance suit under the statute if they can show that the operator’s actions are inconsistent with good agricultural practices, create a

40. Id. § 5753.
41. Id. § 5753(a)(1)(A).
42. See Ark. Code Ann. § 2-4-105 (2008) ("Any and all ordinances adopted by any municipality or county in which an agricultural operation is located making or having the effect of making the agricultural operation . . . a nuisance . . . are void and have no force or effect."); Cal. Civ. Code § 3482.5(d) (West 1997) (same effect); Ga. Code Ann. § 2-1-6(a) (2000 & Supp. 2010) (same effect).
significant interference to the use of local property, or that there is a substantial adverse effect on the public health and safety.44

The protection afforded by the Vermont right-to-farm statute also warrants close scrutiny before an agricultural operator relies too heavily on the statute. If the operator meets the four requirements under Section 5753(a)(1), then the operator is entitled to a “rebuttable presumption that the activity does not constitute a nuisance.”45 The operator may be sued for nuisance even if the agricultural operation complies with the state’s right-to-farm statute and, unlike other states, the statute does not provide a right to attorney’s fees and costs should the agricultural operator prevail.46

The qualifications that the agricultural operator must meet in order to qualify for the protections provided by the right-to-farm statutes may vary widely between the states. In some states, such as Nebraska,47 it will be relatively simple to meet and prove the qualifications, while states like Vermont demand numerous requirements to be met before the shield statute is effective.48 The nuisance protection afforded by the statute may also vary significantly, ranging from almost complete protection from nuisance lawsuits49 to merely raising a rebuttable presumption that the agricultural operation is not a nuisance.50

D. Date of Operation and the Changes That Would Reset the Date (Statutes of Repose)

Many right-to-farm statutes stipulate that the agricultural operation that wishes to use the protections of the statute be operating for a set amount of time, often called a “statute of repose.”51 Some, such as Nebraska,52

44. Id. § 5753.
45. Id. § 5753(a)(1).
46. Id. §§ 5751–54.
Montana,\textsuperscript{53} and Iowa\textsuperscript{54} have no specific period of time designated that the operation must remain in existence. State right-to-farm statutes may contain language that resets the amount of time that the operation will be treated as having been in existence depending upon the changes that are made to the agricultural operation.\textsuperscript{55} Both the length of time required and the types of changes that may reset the time period are critical pieces of information to determine before an agricultural operation should depend upon the right-to-farm statute.

The length of time required by the statute varies considerably. For example, protection in the states that require agricultural operations to submit applications for agricultural zoning in order to be protected by right-to-farm statutes may come into effect as soon as the zoning is approved by the appropriate parties.\textsuperscript{56} This was one of the issues in the \textit{Bormann} case from Iowa in 1998.\textsuperscript{57} In that case, the Iowa Supreme Court ruled that the immunity provided by the right-to-farm statute created an easement that was subject to just compensation.\textsuperscript{58} The state statute based the nuisance immunity entirely on whether a farm or farm operation was located in an agricultural area and disregarded the “established date of operation or expansion of the agricultural activities of the farm or farm operation.”\textsuperscript{59} The Iowa Supreme Court held that the Board’s approval of the application for the creation of an agricultural area triggered the protections provided by the state’s right-to-farm statute which counted as a taking by a governmental entity.\textsuperscript{60}

For states that have a right-to-farm statute with no zoning requirements, the length of time can range from immediate protection to a three-year wait. Nebraska’s right-to-farm statute states that a farm or farm operation:

\textit{[S]}hall not be found to be a public or private nuisance if the farm or farm operation or public grain warehouse or public grain warehouse operation existed before a change in the land use or occupancy of land in and about the locality of

\begin{thebibliography}{99}
\bibitem{52} NEB. REV. STAT. §§ 2-4401 to 4404 (2007).
\bibitem{54} IOWA CODE ANN. §§ 352.1 to 352.12 (West 2001).
\bibitem{55} TEX. AGRIC. CODE ANN. § 251.003 (West 2004); VT. STAT. ANN. tit. 12, § 5753(a)(1)(D) (West 2004).
\bibitem{57} Bormann v. Bd. of Supervisors, 584 N.W.2d 309, 313 (Iowa 1998).
\bibitem{58} \textit{Id.} at 321.
\bibitem{59} \textit{Id.} at 314.
\bibitem{60} \textit{Id.} at 321.
\end{thebibliography}
such farm or farm operation or public grain warehouse or public grain warehouse operation.61

The statute goes on to explain that the protection only extends if the operation’s action could not have been considered to be a nuisance before the change in land use or occupancy.62 While states such as Nebraska provide almost immediate protection from nuisance lawsuits, other states require a significant passage of time. The common range in time periods is from one to three years. States such as Mississippi63 and Arkansas64 have a one-year period of time, the Oklahoma statute that went into effect on November 1, 200965 has a two-year period of time, and California66 has a three-year period before the protections come into effect.

Right-to-farm statutes with a time period of one year or more have fared well against judicial scrutiny. In the Barrera case from Texas, the right-to-farm statute was challenged based on the statute of repose (a one year time period in Texas).67 The appellants in the Barrera case argued that the statute of repose itself was unconstitutional.68 The Court of Appeals, however, affirmed the decision.69 On the constitutionality issue, the appellants argued that the statute of repose was intended for cases where the party “came to the nuisance” instead of the appellants’ circumstances where the feedlot came to them.70 The court found no persuasive evidence that an operation that wishes to use the right-to-farm statute in Texas needs to do anything more than meet the basic requirements set forth in the statute.71

The statutes of repose are relatively simple and easy to resolve. However, many state right-to-farm statutes contain language that resets the statute of repose to the beginning of the time period if the agricultural

62. Id.
64. Under Arkansas law:
   An agricultural operation or its facilities or appurtenances shall not be or become a public or private nuisance as a result of any changed conditions in and about the locality after it has been in operation for a period of one (1) year or more when the agricultural operation or its facilities or appurtenances were not a nuisance at the time the agricultural operation began.
   ARK. CODE ANN. § 2-4-107(a) (2008).
68. Id. at 549.
69. Id.
70. Id.
71. Id.
operation makes a “substantial change.””\textsuperscript{72} Other states include provisions that specifically exclude changes in the agricultural operation from restarting the statute of repose.\textsuperscript{73} If the state is a “substantial change” state, local residents have additional opportunity to challenge the applicability of the right-to-farm statute to the agricultural operation in question. The court interprets what constitutes a “substantial change.” Would slow and steady growth over a period of years be enough to allow a court to find that a “substantial” change had occurred? In the \textit{Bowen} case from Mississippi, a neighbor living near a cotton gin sued for nuisance after the gin had increased the amount of cotton that was ginned.\textsuperscript{74} The Mississippi right-to-farm statute in 1992 read:

\begin{quote}
If the physical facilities of the agricultural operation are subsequently expanded, the established date of operation for each expansion is deemed to be a separate and independent “established date of operation” established as of the date of commencement of the expanded operation . . . .\textsuperscript{75}
\end{quote}

The trial court looked at the ginning operation and determined that the operation ginned 6000 bales of cotton in 1985 and 1986; however, in 1987 the cotton crop in the region was substantially better so that year the operation ginned 9000 bales.\textsuperscript{76} Based upon the language of the statute concerning the expansion of the agricultural operation, the trial court held that the increase in ginning counted as an expansion of the operation and therefore reset the statute of repose.\textsuperscript{77} The Mississippi Supreme Court overruled the trial court and held that a mere increase in business was not enough to trigger the reset, nor was the implementation of pollution control devices in 1985.\textsuperscript{78} The court, however, did not address whether the modernization of the cotton gin several years prior to that would reset the


\textsuperscript{73} GA. CODE ANN. § 41-1-7(d) (1997 & Supp. 2010); N.M. STAT. ANN. § 47-9-3C (LexisNexis 2004); S.C. CODE ANN. § 46-45-40 (West Supp. 2009).

\textsuperscript{74} Bowen v. Flaherty, 601 So. 2d 860, 861–63 (Miss. 1992).


\textsuperscript{76} Bowen, 601 So. 2d at 863.

\textsuperscript{77} Id.

\textsuperscript{78} Id.
The statute of repose. They did not address this question because more than one year had passed since those modifications were made.

In the Barrera case from Texas, a similar situation arose when approximately sixty individuals brought a nuisance action against a feedlot operator. The plaintiffs appealed several of the trial court’s holdings, including the constitutionality of the statute of repose; however, they also challenged the finding that the operation had not substantially changed within the year prior to the filing of the nuisance suit. The surrounding neighbors argued that the feedlot was sold to another feedlot operator and that during the transition period the feedlot was empty and inactive for several months, which should trigger the “substantial change” language in the statute. The Texas Court of Appeals held that the plaintiffs should focus “on whether any substantial changes have occurred in the conditions allegedly creating the nuisance (i.e., the flies, dust, and smell),” and not that the operation halted temporarily during the ownership transition period.

The court went on to note that “there was approximately the same number of cattle (6000) during that year” and that the dust that arose from the feedlot had raised complaints from the plaintiffs for over a year before they filed suit.

The individual right-to-farm statute must be examined closely to determine whether or not a “substantial change” in an agricultural operation will reset the statute of repose. Some states are relatively straightforward in the types of changes that will not reset the protections provided by the right-to-farm statute. Oklahoma’s amended right-to-farm statute directly addresses the issue of what actions will not trigger a reset in the shield provided by the statute. Neither the adoption of new technology nor the

79. Id.
80. Id.
82. Id. at 547–49.
83. Id. at 548.
84. Id. at 549.
85. Id.
86. The amended statute provides:

No action for nuisance shall be brought against agricultural activities on farm or ranch land which has lawfully been in operation for two (2) years or more prior to the date of bringing the action. The established date of operation is the date on which an agricultural activity on farm or ranch land commenced activity. If the physical facilities of the agricultural activity or the farm or ranch are subsequently expanded or new technology adopted, the established date of operation for each change is not a separately and independently established date of operation and commencement of the expanded activity does not divest the farm or ranch of a previously established date of operation.

expansion of the agricultural operation will trigger the reset of the establishment date for purposes of the amended right-to-farm statute. 87 Nuisance lawsuits against agricultural operations in Texas, on the other hand, require that an attorney closely scrutinize any potential actions within one year of the filing of the suit for any potential “substantial changes.” 88 The date of establishment and the reset of this date by a change in circumstances are two areas in which attorneys must remain vigilant, whether they are representing the neighbors of the agricultural operation or the farmer involved in the dispute.

E. Prohibitions Against Other Governmental Regulation

Many states include some form of express prohibition against local governments passing regulations and ordinances that would either directly or indirectly cause an agricultural operation to fail. 89 Most commonly, the local governments wield the power to zone property within their sphere of influence. 90 Local governments have no inherent authority to zone without the state legislature granting them that power through legislation or municipal charter, or the state constitution granting municipalities or county governments that power directly. 91 Because the power to zone or regulate land use within an area is a power that is typically granted by the state, the state has the ability to preempt zoning ordinances that conflict with important state objectives. 92

Some states have chosen to expressly preempt local governments from enacting ordinances or zoning restrictions that will adversely affect agricultural operations. 93 Other state right-to-farm statutes remain silent on

87. Id.
88. The Texas statute provides that:
For purposes of this chapter, the established date of operation is the date on which an agricultural operation commenced operation. If the physical facilities of the agricultural operation are subsequently expanded, the established date of operation for each expansion is a separate and independent established date of operation established as of the date of commencement of the expanded operation, and the commencement of expanded operation does not divest the agricultural operation of a previously established date of operation.

TEX. AGRIC. CODE ANN. § 251.003 (West 2004).
89. States’ Right-to-Farm Statutes, supra note 33.
91. Id.
92. 1 McQuillin MUN. CORP. § 3A.24 (3rd ed. 1999).
the issue. Arkansas has a fairly common form of express preemption against local ordinances:

Any and all ordinances adopted by any municipality or county in which an agricultural operation is located making or having the effect of making the agricultural operation or any agricultural facility or its appurtenances a nuisance or providing for an abatement of the agricultural operation or the agricultural facility or its appurtenances as a nuisance in the circumstances set forth in this chapter are void and shall have no force or effect.

The language in the Arkansas statute is definitive. Any ordinance by a county or municipality “making or having the effect of making” any agricultural operation a nuisance is “void and shall have not force or effect.” There are no exceptions or qualifications included in this form of preemption. However, other right-to-farm statutes contain language that is not so definitive.

An example of a state that has a less rigid preemption clause within the right-to-farm statute is Michigan. The preemption section of the Michigan statute (which is more recent than the Arkansas preemption provision) preempts local ordinances and regulations, but with some exceptions. The Michigan preemption clause reads:

Beginning June 1, 2000, except as otherwise provided in this section, it is the express legislative intent that this act preempt any local ordinance, regulation, or resolution that purports to extend or revise in any manner the provisions of this act or generally accepted agricultural and management practices developed under this act. Except as otherwise provided in this section, a local unit of government shall

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96. Id.
98. According to the Michigan statute:
A local unit of government may submit to the director a proposed ordinance prescribing standards different from those contained in generally accepted agricultural and management practices if adverse effects on the environment or public health will exist within the local unit of government. A proposed ordinance under this subsection shall not conflict with existing state laws or federal laws. At least 45 days prior to enactment of the proposed ordinance, the local unit of
Courts have looked at whether right-to-farm statutes have preempted local ordinances and zoning regulations in different ways, depending upon the statute itself and the activities that the agricultural operator was engaged in at the time of the lawsuit. In *Charter Township of Shelby v. Papesh*, an appellate court in Michigan reviewed a case where an agricultural operator was in violation of a municipal zoning ordinance forbidding agricultural practices on property of less than three acres. Citing Michigan case law, the court recognized that “[s]tate law preempts a municipal ordinance where the ordinance directly conflicts with a state statute or the statute completely occupies the field that the ordinance attempts to regulate.” The court went on to hold that the record from the trial court was unclear on whether the agricultural operation was engaged in “commercial production” as required by the definition of “farm” within the statute. On the issue of preemption, the court found that “the language of the statute is unambiguous” and the fact that the ordinance prohibiting farms of less than three acres predates the beginning of the agricultural operation at issue was not relevant, since the statute also states that “a local unit of government shall not . . . enforce an ordinance . . . that conflicts in any manner with this act.”

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Id. § 286.474(7).
99. Id. § 286.474(6).
101. Id. at 102 (citing Rental Prop. Owners Ass’n v. City of Grand Rapids, 566 N.W.2d 514, 519 (Mich. 1997)).
103. Id. at 102.
California is another state with a provision within the right-to-farm statute that expressly preempts regulation by a local government of the state. The California preemption provision states that:

This section shall prevail over any contrary provision of any ordinance or regulation of any city, county, city and county, or other political subdivision of the state. However, nothing in this section shall preclude a city, county, city and county, or other political subdivision of this state, acting within its constitutional or statutory authority and not in conflict with other provisions of state law, from adopting an ordinance that allows notification to a prospective homeowner that the dwelling is in close proximity to an agricultural activity, operation, facility, or appurtenances thereof and is subject to the provisions of this section consistent with Section 1102.6a.  

This preemption provision appears on its face to overcome any local ordinance or regulation passed by a political subdivision of the state. However, in 2002, Sonoma County successfully passed local regulations that directly concerned agricultural operations within the county. What made this preemption challenge on the right-to-farm law interesting was that the county was not attempting to pass regulations to restrict agricultural operations, but instead was trying to strengthen the California right-to-farm act within the county. The plaintiff challenged the county ordinance as being preempted by the right-to-farm statute either expressly or by the state having “fully occupied” this area of the law. The court examined the preemption provision closely and observed that “contrary provision[s]” of local law are void, but that nothing is stated about local statutes that may support the right-to-farm statute. Also, the fact that the California legislature specifically invalidated “contrary provision[s]” to the right-to-farm statute, and not all ordinances and regulations that may touch and concern agricultural operations, was proof to the court that the legislature did not intend to “fully occupy” this particular area of the law. A careful reading of the preemption provision as well as the legislative intent behind

104. CAL. CIV. CODE § 3482.5(d) (West 1997).
106. Id. at *3.
107. Id. at *19.
108. Id. at *20.
109. Id. at *19–20.
the right-to-farm statute was necessary before an opinion could be rendered about the scope of the California right-to-farm preemption provision.\textsuperscript{110}

A third type of preemption provision can be seen in the laws of Georgia. This preemption statute is not a part of Georgia’s right-to-farm statute like the other states that have been discussed throughout the article. Georgia’s preemption statute is not included with the right-to-farm statute because its reach extends beyond just nuisance suits.\textsuperscript{111} The Georgia preemption statute reads:

\begin{quote}
(a) No county, municipality, consolidated government, or other political subdivision of this state shall adopt or enforce any ordinance, rule, regulation, or resolution regulating crop management or animal husbandry practices involved in the production of agricultural or farm products on any private property.

(b) Subsection (a) of this Code section shall not prohibit or impair the power of any local government to adopt or enforce any zoning ordinance or make any other zoning decision. As used in this subsection, the terms ‘local government’, ‘zoning decision’, and ‘zoning ordinance’ have the same meanings provided by Code Section 36-66-3.

(c) Subsection (a) of this Code section shall not prohibit or impair any existing power of a county, municipality, consolidated government, or other political subdivision of this state to adopt or enforce any ordinance, rule, regulation, or resolution regulating land application of human waste.\textsuperscript{112}
\end{quote}

This statute, which went into effect on May 1, 2009, differs from other preemption statutes for two reasons. One reason the Georgia statute differs from other states is that the preemption statute specifically exempts a local government’s ability to zone property from the coverage of the preemption statute.\textsuperscript{113} The second difference is that nowhere in the preemption statute does it mention the tort of nuisance.\textsuperscript{114} This makes the scope of the preemption much broader than other right-to-farm legislation as it forbids

\textsuperscript{110} Id. at *19–22.
\textsuperscript{112} Id. § 2-1-6.
\textsuperscript{113} Id. § 2-1-6(b).
\textsuperscript{114} Id. § 2-1-6.
the passage or enforcement of any regulations or ordinances (other than zoning) that would regulate the growing of crops or the raising of livestock.\footnote{Id.} This would exclude local governments from regulating other issues, such as animal welfare, which was the principle reason for the new statute.\footnote{Id. § 47-4-160(E).}

Preemption provisions are a part of many right-to-farm statutes; however, the wording and scope of the statutes may differ. Some preemption provisions, such as Georgia’s, may not be located with the right-to-farm statute which makes careful research necessary. If a preemption provision is found, a thorough reading of the preemption provision and the legislative intent behind the statute (if available) are needed to see what restrictions are placed on the local government.

\textbf{F. Attorney Fees and Other Costs}

Another important provision found in many right-to-farm statutes deals with the awarding of attorney fees and other costs to agricultural operators who are unsuccessfully sued in a nuisance action.\footnote{Id. § 47-4-160(E).} As with the other provisions of various right-to-farm statutes, a careful reading of the section regarding attorney fees and other costs is necessary because there is wide variation across the states that recognize some potential right to such costs. Some states will allow the awarding of costs at the court’s discretion.\footnote{LA. REV. STAT. ANN. § 3:3605 (2003).}
others will only allow costs for cases brought forth under certain claims,\(^{119}\) and other states’ right-to-farm statutes are more likely to award attorney fees and other costs.\(^{120}\)

One popular form of a provision that allows for attorney fees and costs is where the awarding of these fees is up to the discretion of the court. An example of this form of state statute can be seen in the Louisiana right-to-farm act’s section on the granting of attorney fees which states that “[i]f the court determines that any action alleging that an agricultural operation is a nuisance is frivolous, the court may award costs of court, reasonable attorney fees, and any other related costs to the defendant.”\(^{121}\) This statute includes not only attorney fees, but also court costs and “other related costs.”\(^{122}\) The most important term in the section dealing with the granting of attorney fees and other costs is the word “frivolous.”\(^{123}\) Iowa is another state whose statute allows for the awarding of attorney fees and other related costs if the nuisance case is found to be frivolous so long as the farming operation was conducted within an agricultural area.\(^{124}\) What is deemed to be frivolous would be up to a court to determine on a case-by-case basis, and as of yet neither the Louisiana nor the Iowa courts have published a case dealing with the award of attorney fees under their right-to-farm statutes.

A second form of a statute granting attorney fees for cases brought against an agricultural operation can be seen in the Kansas right-to-farm statute. The Kansas statute states that:

In any case in which an action for injunction is brought alleging the prior misuse of agricultural chemicals and the court finds that the defendant properly used the agricultural chemicals according to state and federal law and the label instructions and that the plaintiff sustained no damages from the use of such agricultural chemicals, the court may assess against the plaintiff reasonable attorney fees and


\(^{120}\) Tex. Agric. Code Ann. § 251.004(b) (West 2004).

\(^{121}\) La. Rev. Stat. Ann. § 3:3605 (2003); see also Mo. Ann. Stat. § 537.295(5) (West 2008) (“In any nuisance action brought in which an agricultural operation is alleged to be a nuisance, and which is found to be frivolous by the court, the defendant shall recover the aggregate amount of costs and expenses determined by the court to have been reasonably incurred in his behalf in connection with the defense of such action, together with a reasonable amount for attorneys fees.”).

\(^{122}\) Id.

\(^{123}\) Id.

\(^{124}\) Iowa Code Ann. § 352.11(1)(d) (West 2001).
expenses incurred by the defendant as a result of such action.125

In the Kansas right-to-farm statute, the ability to recover attorney fees and expenses is allowed in suits involving the “misuse of agricultural chemicals,” and is not directed towards nuisance lawsuits like many other right-to-farm statutes that contain provisions for attorney fees and expenses. This statute granting attorney fees and expenses for such a narrow issue is unique; however, it illustrates the point that not all statutes granting attorney fees are useful for every lawsuit.

Another type of statute that grants attorney fees and other associated costs can be seen in the Texas right-to-farm statute. Unlike the Louisiana statute, which allowed the court to grant attorney fees if they found the nuisance suit to be “frivolous,”126 the Texas statute delineates a relatively clear path to recovering attorney fees and costs.127 The Texas statute reads:

A person who brings a nuisance action for damages or injunctive relief against an agricultural operation that has existed for one year or more prior to the date that the action is instituted or who violates the provisions of Subsection (a) of this section is liable to the agricultural operator for all costs and expenses incurred in defense of the action, including but not limited to attorney’s fees, court costs, travel, and other related incidental expenses incurred in the defense.128

Several other states have adopted provisions for the awarding of attorney fees and other related costs that are similar in form to the Texas statute.129 Essentially, the statutes read that if the agricultural operation qualifies for the protection of the right-to-farm statute, the party that sued the agricultural operation “is liable”130 or “shall”131 pay for reasonable attorney

127. TEX. AGRIC. CODE ANN. § 251.004(b) (West 2004).
128. Id.
129. See MICH. COMP. LAWS SERV. § 286.473b (LexisNexis 2002 & Supp. 2010) (“In any nuisance action brought in which a farm or farm operation is alleged to be a nuisance, if the defendant farm or farm operation prevails, the farm or farm operation may recover from the plaintiff the actual amount of costs and expenses determined by the court to have been reasonably incurred by the farm or farm operation in connection with the defense of the action, together with reasonable and actual attorney fees.”); OR. REV. STAT. § 30.938 (2009) (same effect); WIS. STAT. ANN. § 823.08(4) (West 2007) (same effect).
130. TEX. AGRIC. CODE ANN. § 251.004(b) (West 2004).
fees and other “costs incurred at trial and on appeal.” Because right-to-farm statutes such as these award attorney fees and costs to the agricultural operation if they are successful in proving that the right-to-farm statute applies to them, there is a small body of case law available (whereas statutes that require the lawsuit to be “frivolous” in nature are often decided by summary judgment motions).

Texas has several cases interpreting the right to attorney fees and other costs for agricultural operations that successfully or unsuccessfully show that their operation is protected by the state’s right-to-farm statute. In the Aguilar case, the plaintiffs sued an agricultural operation that was applying manure to the land as fertilizer. The plaintiffs claimed that application of manure constitutes a nuisance because the nutrients in the manure could leach into the water table and contaminate their water supply. The appellate court affirmed the trial court and found that the agricultural operation had existed for more than one year and that no federal, state, or local laws were broken by the application of the manure to the property. Because of these findings, the agricultural operators were entitled under the Texas right-to-farm statute to recover their attorney fees from the plaintiffs.

Another appellate court in Texas deciding a nuisance case under which the right-to-farm statute might apply reached a different conclusion. In the Hendrickson case, the issue that was appealed was whether the owner of chickens qualified as an “agricultural operation” under the Texas right-to-farm statute so that they could recover attorney fees. The suit was a nuisance action brought against the Hendricksons because of “the constant crowing and noxious odors” produced by their chickens. The Texas right-to-farm statute includes within the definition of “[a]gricultural operation” the “raising or keeping of livestock or poultry;” however, the Hendricksons were primarily raising the chickens for the purpose of fighting rather than more traditional pursuits. The court looked at the

132. Id.
134. Aguilar, 162 S.W.3d at 844.
135. Id.
136. Id. at 852–55.
137. Id.
138. Hendrickson, 9 S.W.3d at 301–02.
139. Id. at 299–300.
140. Id. at 299.
142. Hendrickson, 9 S.W.3d at 299.
statement of policy found at the beginning of the Texas right-to-farm statute for guidance.\textsuperscript{143} The policy statement said in part that “[i]t is the policy of this state to conserve, protect, and encourage the development and improvement of its agricultural land for the production of food and other agricultural products.”\textsuperscript{144} The court ruled that the raising of fighting cocks was not tied to “the production of food and other agricultural products,” and that the fighting chickens did not fall under the category of poultry since they were not raised primarily for food.\textsuperscript{145} Because the raising of fighting chickens was not held to be part of an agricultural operation, the Hendricksons were denied the protection of the Texas right-to-farm statute, including the section that would have allowed them to recoup attorney fees if they had prevailed.\textsuperscript{146}

Right-to-farm statutes that award attorney fees and other costs if the agricultural operator is successful in defending against nuisance actions can have several effects that are not seen in other states that lack this provision. Such a provision will give plaintiffs that bring frivolous lawsuits against agricultural operators pause before filing suit if they believe that they will have to pay for both their costs as well as their adversaries’ costs. Additionally, such a provision may allow an agricultural operation to continue its defense against nuisance litigation if there is a substantial chance that it will not have to pay for the high costs of litigating a court case. These provisions for the recovery of attorney fees and other costs may prove to be an invaluable tool; however, their usefulness depends upon the wording of the statute and the unique facts that make up the case.

\textbf{CONCLUSION}

All fifty states have introduced some form of a “right-to-farm” statute which provides liability protection from nuisance lawsuits; however, the activities covered and the protections provided vary significantly across the country. There are several different types of right-to-farm laws throughout the United States, but the majority base their protection on whether the agricultural operation existed substantially unchanged for a set period of time, or if the agricultural operation is within some form of an agricultural district.\textsuperscript{147} While the statutes may differ, there are some similarities that can

\begin{itemize}
\item \textsuperscript{143} Id. at 300.
\item \textsuperscript{144} § 251.001.
\item \textsuperscript{145} Hendrickson, 9 S.W.3d at 300.
\item \textsuperscript{146} Id. at 301.
\item \textsuperscript{147} Richardson & Feitshans, supra note 3, at 128.
\end{itemize}
be found by closely examining the statutes. Some provisions are commonly found in many right-to-farm statutes such as the general policy statement, the definitions of “agriculture” and “agricultural activities,” the limitations on protected actions, the length of time that the operation must exist before qualifying for immunity as well as the changes in the operation that will reset this limit, prohibitions against local government interference, and the awarding of costs in certain cases are some of the more commonly-found provisions in right-to-farm statutes. All states have some or all of these general provisions in some form; however, many states add unique wrinkles that can only be found by carefully examining not only that state’s right-to-farm statute, but other statutes that may be germane to the issue.

Thirty years ago state legislatures across the country recognized that rapidly expanding urban and suburban areas were going to cause conflicts between the existing agricultural operations and the new residents. Recognizing that agricultural operations may need protection from new arrivals, states adopted a wide variety of protections, limitations, and exceptions which apply to the ability to bring nuisance lawsuits against agricultural operations. Thirty years later the situation remains largely unchanged, and while scholars may debate the merits of protecting the interests of some property owners over others, there is little doubt that the protections provided by right-to-farm statutes are substantial. These statutes will no doubt continue to influence the growth of urban and suburban areas while also impacting the property rights and values of both agricultural operators and local residents far into the future.

SMALL, SLOW, AND LOCAL: ESSAYS ON BUILDING A MORE SUSTAINABLE AND LOCAL FOOD SYSTEM

Mary Jane Angelo

with

Amelia Timbers, Matthew J. Walker, Joshua B. Donabedian, Devon Van Noble, Erik Phillips-Nania, Emily Parish, and Jennifer L. Perez

TABLE OF CONTENTS

Small, Slow, and Local.................................................................354
   Mary Jane Angelo
Overdoing It: The Story of the Agricultural Exemption in United States Antitrust Regulation .......................................................373
   Amelia Timbers
Exploring Regionalization of United States Agriculture: A Glance at Vermont Initiatives .........................................................380
   Matthew J. Walker
Bringing Down the Walls: Addressing Barriers to a New Generation of American Farmers .............................................................386
   Joshua B. Donabedian
Alternatives in Agricultural Land Tenure ...........................................393
   Devon Van Noble
Local Food Currency: An Economic Tool for Community Health ........400
   Erik Phillips-Nania
Farm to School Programs ................................................................412
   Emily Parish
Farmers’ Markets Take Food Stamps: Making an Impact on the American Diet? .................................................................421
   Jennifer L. Perez
SMALL, SLOW, AND LOCAL

Mary Jane Angelo*

We’re at Wounded Knee. For all the foodie fluff and eco-local buzz, in the final analysis the imbedded, heritage, transparent, truthful food system is in danger of annihilation. The Seventh Cavalry wears blue pinstriped suits and sits in posh government office buildings. The Native Americans are farmers trying to heal their land, their neighbors, and their food.

—Joel Salatin1

INTRODUCTION

The United States is in the middle of a significant cultural shift. Until very recently, United States citizens and policy-makers were willing to accept, or at least tolerate, what has become our food status quo—a highly subsidized, centralized, industrial food system that is environmentally harmful and unsustainable and encourages unhealthy eating habits. Many citizens and policy-makers are now demanding that we re-evaluate our entire agricultural system from farm to table and look for ways to develop a new food paradigm that is environmentally sound, sustainable, socially equitable, and that makes healthy whole foods available to all. Although the dramatic rise in demand for organic foods is evidence of a change in sentiment, many believe that a more transformative approach is necessary to make a true shift to an environmentally sound, sustainable, equitable, and healthy food system. Well-known author Michael Pollan, whose best-selling books, The Omnivore’s Dilemma2 and In Defense of Food,3 have contributed to the public’s interest and concerns in these matters, has argued in favor of a more regionalized food system. Other best-selling books have urged local-eating, which has led to the “locavore” movement and the idea of eating from our own local “foodshed.” A Virginia farmer, Joel Salatin,

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who authored the book *Everything I Want to Do is Illegal*\(^4\) and the quotation above, has become the unexpected hero of the local food movement.

During the summer of 2010, I taught a course titled “Agricultural Policy and the Environment” at Vermont Law School. When I walked into the classroom on the first day I was shocked to see almost fifty students in the class. I taught the same course the year before and had approximately twenty-five students in the class. Although I cannot be sure, I think that if I taught the same course ten years ago I would be lucky to have enough students register to avoid having the course cancelled. Not only did the 2010 course have a very large enrollment, but the students who were in the course were extremely interested and engaged and brought with them a broad range of relevant experience. Some had grown up on farms in various parts of the country while others had chosen to work on organic farms as teenagers or adults. Some students had previously or were currently working on agricultural or food policy matters through a variety of organizations such as land trusts and in a variety of capacities such as being a social worker. Many others, while not having as much direct experience, had learned a great deal about agricultural and food policy through other formal education or independently. The widespread interest in agricultural issues at Vermont Law School mirrors the renewed interest in food policy by the public in general.

Unquestionably, many factors contribute to this cultural shift to local foods, including a desire to feel more connected to the land and to interact more with our communities. However, certainly a major factor is the public’s growing awareness that our current industrialized food system has failed us with regard to the health of both our diets and the environment.

I. THE PROBLEMS WITH CENTRALIZED INDUSTRIAL AGRICULTURE\(^5\)

The United States agricultural system today is dramatically different from what it was fifty years ago, due in large part to the “Green Revolution” of the mid-twentieth century. The Green Revolution replaced human labor with technological innovations and a reliance on large amounts of fossil fuel inputs and mechanized farm equipment, which

\(^4\) Joel Salatin, *Everything I Want to Do is Illegal: War Stories from the Local Food Front* (2007).

significantly increased per acre farm yields. The Green Revolution was promoted by a new suite of government policies that encouraged high-yield farming of commodity crops by linking subsidy payments to production levels, more government money for research and development on high yield farming, and a vast network of extension service education and training of farmers in high-yield commodity farming. The Green Revolution has led to a more than 150% increase in farm production over the past sixty years.

The hallmarks of industrialized agriculture include: monocultures, few crop varieties; reliance on chemical and other inputs; and the separation of animal and plant agriculture. Each of these features, alone and in combination, contributes to a variety of environmental, human health, and socio-economic impacts. It cannot be denied that the Green Revolution significantly increased crop yields and thus made more and cheaper food available. However, along with its societal benefits, the Green Revolution also brought with it a variety of serious adverse social, economic, and environmental consequences. Centralized industrialized agriculture has replaced human inputs with fossil fuel inputs. Thus, from an economic and social standpoint, intensive industrial agriculture has led to the virtual disappearance of the traditional family farm, and a decline of economic and social conditions in rural communities. High production industrialized agriculture is also a major contributor to a large number of environmental harms including topsoil depletion, contamination of surface and groundwater, loss of biodiversity, and harm to protected species.


13. Id. at 269. For additional discussion on the environmental harms caused by farming, see Angelo, *Corn, Carbon, and Conservation*, supra note 5; Mary Jane Angelo, *Embracing Uncertainty*.
Moreover, because industrialized agriculture relies on high fossil fuel energy inputs, and thus has high carbon outputs, it is exacerbating the global climate change crisis.

**A. Impacts to Water**

Industrialized agriculture is a major contributor to adverse impacts on both the quantity and quality of the nation’s water bodies. Industrialized agriculture relies on large fossil-fuel-derived fertilizer and pesticide inputs as well as substantial water inputs—all of which play a significant role in causing harm to water resources. High-yield industrialized agriculture, particularly when located in geographic areas that do not experience sufficient rainfall to support such intense agricultural practices, is a significant user of water. Agricultural practices that depend on large-scale irrigation can result in severe adverse water quantity impacts. Agricultural irrigation accounts for more than one-third of the freshwater use in the United States, making it the largest user of water in the country. In many western states, agricultural irrigation constitutes approximately seventy-five percent of total water consumption. The fact that many commodity grain crops are grown in parts of the country that do not have sufficient water resources to support intensive agriculture only exacerbates the problem.
Consequently, water is often diverted from sources far from the farms’ fields.21

To make matters worse, many of the current irrigation methods used, such as spray irrigation, are inefficient, resulting in large amounts of water being lost to evaporation or runoff. Water quantity impacts could be significantly reduced by growing crops in appropriate places, using efficient irrigation systems, and having water management plans.22 Regardless of any efficiencies gained by using better technology or growing crops in appropriate geographic locales, industrialized agriculture has a driving goal of maximizing per acre yields, and thus still demands large amounts of water to produce such large yields.23 As urban and suburban centers grow, many areas of the country currently are facing severe water shortages. Such shortages often set up a fierce competition between agriculture and either the natural environment24 or public water supply needs for urban and suburban populations.25

In addition to causing adverse water quantity impacts, industrialized agriculture is a major contributor to adverse impacts to the quality of both groundwater and surface water.26 Stormwater runoff from farm fields contains high levels of pollutants including sediments from soil erosion, pesticides, and fertilizers.27 When rain or irrigation water

21. Id. at 253.
24. Bennett v. Spear, 520 U.S. 154 (1997); see Reed D. Benson, Giving Suckers (and Salmon) an Even Break: Klamath Basin Water and the Endangered Species Act, 15 TUL. ENVTL. L.J. 197 (2002) (discussing the 2001 drought in the Klamath River Basin that led to controversy between farmers and the government over fish protected by the Endangered Species Act); Holly Doremus & A. Dan Tarlock, Fish, Farms, and the Clash of Cultures in the Klamath Basin, 30 ECOLOGY L.Q. 279 (2003) (presenting a case study to demonstrate the key challenges faced by many communities in the arid West); Eubanks, A Rotten System, supra note 6, at 254 (discussing conflict between Georgia, Florida, and Alabama over the allocation of water in the Apalachicola-Chattahoochee-Flint River Basins and increased scarcity of water resulting from the Green Revolution); Klein, supra note 20, at 260–61 (discussing water diversion in Florida for urban development that literally separated the northern citizens from those living in the south); Drew Melville, “Whiskey is for Drinking . . . .”: Recent Water Law Developments in Florida, 20 J. LAND USE & ENVT. L. 489 (2005) (discussing Florida’s issues dealing with water, development, property rights, and agricultural policy); C. Grady Moore, Water Wars: Interstate Water Allocation in the Southeast, 14 NAT. RESOURCES & ENVT. 5 (1999) (discussing the strain that expansion in the southeast has placed on water resources).
26. Eubanks, A Rotten System, supra note 6, at 255.
contacts farm fields, agricultural chemicals, including certain pesticides and nitrites from fertilizers, leach into groundwater often rendering the water unacceptable for drinking or other uses. Where groundwater naturally flows into surface water, such as is the case with artesian springs, contaminants enter the surface water as well. Moreover, rain and irrigation water that exceeds the amount capable of being absorbed into the soil picks up pollutants and carries them from agricultural fields into surface water bodies.

Fertilizers used to achieve high per acre yields in industrial agriculture contain nutrients such as phosphorus and ammonium nitrate, which can cause serious harm to water bodies. Large quantities of fertilizers are carried in rainwater runoff into water bodies where they act, in essence, as fertilizers for algae, thereby promoting overgrowth of algae. Water bodies with overabundant algae and high nutrient levels are referred to as hyper-eutrophic. Hyper-eutrophic water bodies are characterized by algae dominance, rather than submersed plant dominance, low oxygen, and reduced fish and other aquatic organisms. Nutrient-rich waters from fertilized fields eventually flow into estuaries where they can create “dead zones” in areas previously characterized by high fish and aquatic organism productivity. The primary example of this phenomenon is the enormous dead zone in the Gulf of Mexico at the mouth of the Mississippi River. Seventy percent of the nitrogen entering the Gulf of Mexico comes directly from agricultural activities in the Mississippi River basin. Similarly, rainwater runoff carries pesticides used on agricultural fields to water bodies where they exert harmful effects on fish and aquatic life.

Another significant agricultural pollutant in surface water bodies is sedimentation from soil erosion resulting from tilling practices that dislodge soil which is then carried by runoff. The Green Revolution’s shift from perennial rotation of crops to large single crop monocultures, such as most

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28. Id. at 4.
29. Ruhl, supra note 13, at 291.
30. Eubanks, A Rotten System, supra note 6, at 255.
31. Id.
32. Lewandrowski et al., supra note 13, at 404, 408; Ruhl, supra note 13, at 284.
33. Eubanks, A Rotten System, supra note 6, at 256–57.
34. Id. at 255–56.
35. Ruhl, supra note 13, at 288.
36. Id. at 288–89.
37. Eubanks, A Rotten System, supra note 6, at 256.
38. Id.
40. Eubanks A Rotten System, supra note 6, at 257.
cornfields, has accelerated the rate of topsoil erosion.\textsuperscript{41} Loss of topsoil to erosion can dramatically reduce productivity of agricultural lands.\textsuperscript{42} Moreover, the more than two billion tons of sediment that enter the nation’s waterways each year\textsuperscript{43} can clog streams and fill shallow areas of water bodies, thereby reducing habitat and light availability to submersed plants.\textsuperscript{44}

In addition to the water quality problems associated with fertilizer, pesticide, and topsoil runoff, another major contributor to water quality impacts is animal waste from concentrated feedlots. Historically, farmers raised livestock primarily on open grazing fields.\textsuperscript{45} The cattle’s nutrition was primarily from field grass with very small amounts of supplementation from grains. By heavily subsidizing commodity grain production, the policies of the Green Revolution made grains far less expensive for livestock producers to purchase.\textsuperscript{46} Consequently, producers were able to confine livestock onto highly concentrated feedlots where they could feed the animals inexpensive grain rather than needing large areas of land for the animals to graze on grasses.\textsuperscript{47} Corn has now replaced grass as the primary cow feed and thus many cattle ranchers have replaced open-range grazing with a mostly corn-based diet in confined feedlots.\textsuperscript{48} Cattle diet, which once was almost solely a grass diet, now is largely comprised of grain.\textsuperscript{49} Today corn is the primary feed grain in the United States, accounting for more than ninety percent of total feed grain produced and used.\textsuperscript{50} The concentrated animal feeding operations, where much of the livestock is confined, are a major source of water pollution problems.\textsuperscript{51} Historically, farmers used animal wastes as fertilizers for crops grown on the same farm as the animals that created the waste. Now these wastes have no use and the vast quantities of concentrated animal waste have become one the nation’s largest sources of water pollution.\textsuperscript{52} In his October 12, 2008 letter, Michael Pollan explains how the once closed-loop animal waste fertilizer system has

\begin{enumerate}
\item \textsuperscript{41} Id. at 257–58.
\item \textsuperscript{42} Id. at 262.
\item \textsuperscript{43} Id. at 257.
\item \textsuperscript{44} Id.
\item \textsuperscript{45} Id. at 259.
\item \textsuperscript{46} Id. at 280.
\item \textsuperscript{47} Id. at 259–60.
\item \textsuperscript{48} Id.
\item \textsuperscript{49} \textsc{Pollan, Omnivore’s Dilemma}, supra note 2, at 66–67.
\item \textsuperscript{51} Bruce Yandle & Sean Blacklocke, \textit{Regulating Concentrated Animal Feeding Operations: Internalization or Cartelization?}, in \textit{Agricultural Policy and the Environment}, supra note 19, at 45, 48–49.
\item \textsuperscript{52} Eubanks, \textit{A Rotten System}, supra note 6, at 260.
\end{enumerate}
been replaced with a system that creates two major problems. Pollan explains these problems by paraphrasing Wendell Barry as follows:

[T]o take animals off farms and put them on feedlots is to take an elegant solution—animals replenishing fertility that crops deplete and neatly divide it into two problems: a fertility problem on the farm and a pollution problem on the feedlot. The former problem is remedied with fossil-fuel fertilizer; the latter is remedied not at all.

B. Implications for Biodiversity

A number of industrialized agriculture practices cause harm to wildlife and biodiversity. First, converting large natural areas into vast monoculture farmlands greatly reduces or eliminates habitat. Second, as described above, sedimentation from erosion adversely impacts aquatic organisms. Nutrients from fertilizer lead to eutrophic conditions in water bodies, characterized by low oxygen levels, which results in reductions of submersed plants and aquatic organisms. Third, one of the most significant impacts to biodiversity results from synthetic pesticide use. Pesticides harm wildlife and aquatic organisms through direct contact with animals that are in farm fields when they are treated with pesticides, as well as from aerial drift and runoff from farm fields into non-farm areas where wildlife species are present. Finally, some classes of pesticides bioaccumulate in the food chain, exposing species that feed high on the food chain to highly-concentrated pesticides in their food sources.

54. Id.
55. See generally, THE FATAL HARVEST READER, supra note 9 (discussing the harm that industrial agriculture causes to wildlife and biodiversity).
57. Ruhl, supra note 13, at 277–78.
59. Id. at 258–59. See also Angelo, Embracing Uncertainty, supra note 13 (discussing the harmful effects of pesticides on wildlife); Ruhl, supra note 13, at 283 (explaining how pesticides, such as DDT, can fail to reach target pests and instead cause damage to adjacent ecosystems, waterways, and humans).
Although pesticides of one form or another have been used in agriculture for hundreds of years, it was not until World War II that the development of new synthetic chemical pesticides led to an explosion of global pesticide usage. The rapid worldwide adoption of synthetic chemical pesticides beginning during World War II coincided with the Green Revolution and its push toward ever-higher per acre yield. Highly toxic synthetic pesticides became a major component of high yield industrialized agriculture. Pesticide use was extensively promoted by the vast agricultural extension service network that supported the Green Revolution. The environmental movement of the 1960s and early 1970s led to the banning of one category of synthetic pesticides—the organo-chlorines, such as DDT which bio-accumulated and resulted in severe problems for many species of predatory birds. Nevertheless, many of the synthetic pesticides, such as organo-phosphates and carbamates, that continue to dominate in United States industrialized agriculture, pose significant risks to fish and wildlife even though they do not bio-accumulate. In fact, recent studies and reports indicate that the threat of agricultural pesticide use to wildlife continues despite the ban of the organo-chlorine pesticides. A Center for Biological Diversity report concluded that the EPA has approved registrations for pesticides that put more than 375 threatened and endangered species at risk. Another study by the American Bird Conservancy estimates that out of the 672 million birds that are directly exposed to pesticides each year, more than sixty-seven million will die from the pesticide exposure. Moreover, reports of pesticide poisoning of fish, birds, and other wildlife are not uncommon. Furthermore, pesticides are believed to be a contributing factor in the “impending pollinator crisis.” Pollinators at risk include commercial honey bees as well as other wild pollinators, including wild bees and a

61. Angelo, Embracing Uncertainty, supra note 13, at 144.
65. Id. at 17. This estimate is supported by work conducted by Dr. David Pimentel, who has reported a conservative estimate of sixty-seven million bird deaths per year from agricultural pesticide use. David Pimentel et al., Assessment of Environmental and Economic Impacts of Pesticide Use, in THE PESTICIDE QUESTION: ENVIRONMENT, ECONOMICS, AND ETHICS, supra note 62, at 47, 68.
66. LITMANS & MILLER, supra note 64, at 17.
variety of species of bird and bat pollinators. Finally, many scientific studies suggest that we do not yet have a full understanding regarding the pesticide risks to wildlife.

Another obvious impact to biodiversity from industrialized agriculture is the clearing of land to grow vast areas of monocultures of commodity crops. A shift away from monocultures to fields containing a diversity of crops, coupled with the use of borders, buffers, and refugia for other organisms could limit the impacts to wildlife and biodiversity resulting from the conversion of nature to farmland.

C. Contribution to Climate Change

High intensity industrialized agriculture is heavily dependent upon fossil fuel inputs, and consequently results in high fossil fuel outputs—namely, greenhouse gases. For example, nitrogen fertilizers are made from natural gas and most synthetic pesticides are derived from fossil fuels. Diesel and gasoline are used to run heavy farm machinery such as tractors and combines, as well as to transport agricultural products long distances to


68. See, e.g., Andrew Ogram & Yun Cheng, St. Johns River Water Mgmt. Dist., Final Report: Biological Breakdown of Pesticides in Lake Apopka North Shore Restoration Area Soil in a Mesocosm Experiment (2007), available at http://www.sjrwmd.com/technicalreports/pdfs/SJ2007-SP1.pdf (demonstrating the complexity of pesticide breakdown in soils and under a variety of conditions); Lawrence J. Blus & Charles J. Henry, Field Studies on Pesticides and Birds: Unexpected and Unique Relations, 7 ECOLOGICAL APPLICATIONS 1125 (1997) (finding, among other things, shortcomings with existing field testing of pesticides on birds and unexpected toxic effects and routes of exposure of certain organophosphate pesticides); see also Ruhl, supra note 13, at 272–92. In this article, Professor J.B. Ruhl describes the negative impacts of agriculture and the lack of strong environmental regulation of agriculture. Ruhl describes how farms, despite their substantial and negative influence on the American environment, often are exempted from environmental laws and regulations. Id. Farms account for 930 million acres of the American landscape, and in 1997 had sales of just under $200 billion. Id. at 272–73. However, the farming industry also provides numerous hazards to the United States environment, such as habitat loss and degradation, soil erosion, pesticide releases, and nonpoint source water pollution. Id. at 274–93. Farms use over 750 million pounds of pesticides annually, and account for roughly eighty percent of the United States pesticide use. Id. at 282. The author notes how a “significant fraction” of pesticides fail to interact with the target but rather are absorbed into the soil, posing short-term, and for some pesticides, long-term toxic risks. Id. at 283. Furthermore, pesticide runoff has serious and negative consequences for the water supply. Id. at 283–84.

69. See generally Thomas K. Gottschalk et al., Impact of Agricultural Subsidies on Biodiversity at the Landscape Level, 22 LANDSCAPE ECOL. 643 (2007) (discussing the differing impacts of production-based subsidies and direct income support on biodiversity).

70. Eubanks, Sustainable Farm Bill, supra note 13, at 10,504.

71. Pollan, Farmer in Chief, supra note 53.
processing facilities and retailers.\textsuperscript{72} Agricultural activities are responsible for approximately twenty percent of United States fossil fuel consumption. Agriculture accounts for approximately thirty-seven percent of United States and fifteen percent of worldwide greenhouse gas emissions.\textsuperscript{73}

\textbf{D. Human Health Impacts}

Industrialized agriculture can have significant adverse effects on human health. Pesticides not only harm wildlife in and around the farm field, but also pose risks to humans who come into contact with them through water, air, or food contamination. Pesticides that leach into groundwater or run off into surface waters can contaminate drinking water sources as well as fish that humans consume. Humans are also directly exposed to pesticides that are sprayed on fields and are carried by the wind to neighboring inhabited areas.\textsuperscript{74} Pesticide residues remain in or on foods consumed by humans. The human population that is at greatest risk from pesticides, however, is farmworkers and their families, who are directly exposed to substantial amounts of pesticides in the places in which they work and live.\textsuperscript{75}

In addition to pesticidal contamination, one of the most significant human health concerns is the way that industrialized agriculture has transformed the American diet, which now is comprised of unprecedented amounts of relatively inexpensive processed foods.\textsuperscript{76} These processed foods not only lack the nutrients found in fresh whole foods, but they also contain a large array of substances that pose risks to human health.\textsuperscript{77} As a result of United States policy that provides generous subsidies to large-scale commodity crop producers, commodities such as corn are over-produced to such a degree that cheap subsidized corn-derived products are used in virtually all processed foods. Michael Pollan discusses at length in \textit{The Omnivore’s Dilemma} that virtually all processed food contains sweeteners, starches, and other additives derived from corn. The cheap availability of these corn derived additives is a direct result of United States agricultural

\begin{itemize}
\item \textsuperscript{72} Eubanks, \textit{Sustainable Farm Bill}, supra note 13, at 10,504.
\item \textsuperscript{73} \textit{Id.}; Pollan, \textit{Farmer in Chief}, supra note 53.
\item \textsuperscript{74} A detailed discussion of the risks to humans from pesticide exposure from food and water is beyond the scope of this article. For a more detailed discussion, see Edwin D. Ongley, \textit{Pesticides as Water Pollutants, in Control of Water Pollution from Agriculture--FAO Irrigation Papers} (1996), available at http://www.fao.org/docrep/W2598e/w2598e07.htm.
\item \textsuperscript{75} A detailed discussion of the health effects of farmworker exposure to pesticides is beyond the scope of this article. For a more detailed discussion, see Eubanks, \textit{A Rotten System}, supra note 6, at 276.
\item \textsuperscript{76} Eubanks, \textit{A Rotten System}, supra note 6, at 279–81.
\item \textsuperscript{77} See id. at 279–82 (discussing the health impacts of “corn based, high fat, processed food items”).
\end{itemize}
policy which encourages overproduction of corn and other commodity crops though generous government subsidies linked to per acre production levels. Many of the corn products that dominate processed food ingredient lists are linked to serious health concerns. For example, high fructose corn syrup, which has been incorporated into large numbers of processed foods, has been linked to the current obesity and diabetes epidemics.

E. Social Impacts

In the fifty years between 1950 and the end of the twentieth century, the number of United States farms declined by approximately sixty percent. Since 1979, the United States has lost more than 300,000 farmers. The Green Revolution dramatically changed the landscape of the nation’s rural communities. As human labor inputs were replaced with fossil fuel inputs, and as human workers were replaced with mechanized farm equipment, fewer and fewer workers were needed on the farm. At the same time, the consequences of the Industrial Revolution and the economic expansion of post-WWII America created unprecedented numbers of new jobs in and near urban areas. The combination of these two phenomena led to a vast migration of rural populations to urban and suburban areas. Children of farmers who once would have stayed on the family farm, and other workers who once would have worked on farms or in businesses that supported farming and rural communities, left in droves for opportunities in the cities. The result of this exodus was economic and social devastation for many rural communities, with many farming towns becoming virtual ghost towns. Family farms that remained began to be bought out by large industrialized farms that, armed with massive government subsidies, gobbled up thousands of small farms.

78. See POLLAN, OMNIVORE’S DILEMMA, supra note 2 (discussing the rise of corn in food and nonfood products).
79. Id.
80. A detailed discussion of the health effects linked to high fructose corn syrup is beyond the scope of this article. For a more detailed discussion, see George A. Bray et al., Consumption of High-Fructose Corn Syrup in Beverages May Play a Role in the Epidemic of Obesity, 79 AM. J. CLINICAL NUTRITION 537 (2004), available at http://www.ajcn.org/cgi/reprint/79/4/537.
81. Eubanks, A Rotten System, supra note 6, at 229.
83. Id.
84. Id.
85. Id.
A more localized food system could bring many benefits to both rural and urban communities. A local agriculture system can bring back the family farm, thereby returning jobs and economic activity and a sense of community to rural areas. Similarly, the emergence of urban agriculture has the potential to provide new and different economic opportunities to urban dwellers who participate in growing, distributing, and selling locally grown foods. Perhaps even more important than the economic opportunities local agriculture can provide, however, are the less tangible social benefits. The explosion of farmers’ markets in suburban and urban communities suggests a desire to feel more connected to community, as well as to where our food is grown. Farmers’ markets can be a regular meeting place for neighbors to meet and interact. There also seems to be a desire to feel a connection with the people who grow our food and to know where and how our food is produced.

In addition, a localized food system can be a way to improve the nutritional value of the American diet and to provide access to fresh healthful foods to people who may not historically have had such access. Food that does not have to travel hundreds or thousands of miles between producer and seller does not need as much processing and retains more nutrients. Moreover, in many urban areas, it is extremely difficult, if not impossible, for lower income people to obtain fresh healthful fruits and vegetables. Many lower income urban areas are considered to be “food deserts” in that there are not any grocery stores in the area where residents can purchase anything but processed fast foods. To get to a grocery store that sells whole non-processed foods, residents must travel for long distances. This may not be practical for people who do not own cars and do not have the money or time to travel between their neighborhoods and the typically suburban supermarkets. Urban gardens, urban farmers’ markets, and food to school programs can make fresh nutritious food readily available, thereby giving low income urban dwellers the ability to improve their health through good nutrition.

F. Resilience and Food Security

Modern centralized industrial agriculture is based on vast acreages of monocultures, with large areas being devoted to the heavily subsidized

86. For a detailed discussion of the reasons to purchase local foods and the benefits of such practices, see generally Coit, supra note 82, at 55.
87. Id. at 48–51.
88. Id. at 50–52.
commodity grain crops. Monocultures without crop rotation and intercropping create the perfect environment for the build-up of monoculture crop pests. The absence of crop rotation and intercropping in these systems also creates the need for higher inputs of artificial fertilizers. In addition to the increased need for pesticide and fertilizer inputs associated with the growing large areas of a single crop, monocultures also are less resilient than more diverse systems. Ecological resilience is a measure of the magnitude of a perturbation that a system can absorb before the disturbance causes the system to shift into a different regime of behavior with different controlling processes. Accordingly, ecological resilience captures the strength of redundancies in the system stemming from reinforcing processes and compensating functions provided by a diversity of species. These redundancies enable the system, whether it be a natural ecosystem or an agricultural farm field, to absorb disturbances and persist despite the disruption.

Generally, the more diverse the system, the more resilient it becomes. Single crop and especially single crop variety systems are extremely vulnerable to outbreaks of particular diseases, pests, or contamination with particular pollutants to which the crop or variety is vulnerable. If a variety is vulnerable, all of the plants within the variety will be similarly vulnerable. A more diverse system, both in terms of crop diversity and genetic diversity within a crop type, will limit vulnerability to specific

89. Angelo, Corn, Carbon, and Conservation, supra note 5, at 603, 611.
90. See Judith Thompson et al., Biodiversity in Agroecosystems, in FARMING WITH NATURE: THE SCIENCE AND PRACTICE OF ECOAGRICULTURE 46, 46–48 (Sara J. Scherr & Jeffrey A. McNeely, eds., 2007) (discussing the importance of the various components of agricultural biodiversity and the contribution they make to sustainable production, livelihoods, and ecosystem health); Eubanks, A Rotten System, supra note 6, at 264–65 (discussing the unintended consequence of pesticides on insects and animals not directly targeted by the pesticides).
91. Eubanks, A Rotten System, supra note 6, at 258; see also Antonio P. Mallarino et al., Grain Yield of Corn, Soybean, and Oats as Affected by Crop Rotation and Nitrogen Fertilization for Corn, in 2005 ANNUAL PROGRESS REPORTS: NORTHERN RESEARCH & DEMONSTRATION FARM (2006), available at http://www.agronext.iastate.edu/soilfertility/info/NIRFN_RotationJan-30-06.pdf (discussing the results of a crop rotation study); Boardman et al., supra note 27, at 1–6 (discussing industrial agriculture’s contribution to soil erosion); Cal. Acad. of Sci., Sustainable Crop Rotation, SCI. TODAY: BEYOND THE HEADLINES, May 4, 2010, http://www.calacademy.org/sciencetoday/sustainable-crop-rotation/ (explaining that crop rotation and intercropping can be used to replenish the soil by introducing nitrogen producing crops among or in sequence with the desired crop and that these practices also can help to reduce erosion of fertile topsoil by reducing vulnerability to erosion by ensuring that bare land is not exposed to rain and wind).
93. Id. at 6.
94. Thompson et al., supra note 90, at 46.
diseases, pests, or environmental conditions. In a diverse system, even if vulnerable crop varieties or individual plants within a crop variety are killed off, other more resistant varieties or individual plants will be able to survive. Of course, reliance on large monocultures that are vulnerable to, for instance, a particular disease decreases food security, which can lead to food shortages and can also result in volatile markets and dramatic increases in food prices. By shifting to more localized, diverse food systems, the resilience of individual farms and our food system as a whole can be strengthened, thereby improving food security and stabilizing food prices. If people in local communities purchase most of their food from local sources, individual communities can build their own secure food systems and will not be reliant on availability and affordability of food from large industrialized agriculture thousands of miles away.

The industrialized agriculture system’s heavy reliance on fossil fuels for fertilizer and pesticides and to fuel the heavy mechanized equipment used in producing, processing, and transporting food long distances means that the system is vulnerable to availability and cost of the fossil fuels. Given that a large percentage of American fossil fuels are imported from other countries, the United States agricultural system is at the mercy of the political and economic volatility of other countries.

II. TRANSFORMING OUR FOOD SYSTEM: LOCAL SOLUTIONS

In his 2008 New York Times letter to the “Farmer-in-Chief,” Michael Pollan describes how our regional food economy has become “national and increasingly global in scope.” He attributes this change largely to cheap fossil fuel, which supports high yield industrialized farming and allows us to ship crops and products all over the world and still be able to sell food products at relatively low prices. Pollan and others have pointed out the absurdity and wastefulness of our current system in which it can be economically feasible to, for example, “catch salmon in Alaska, ship it to China to be filleted and then ship the fillets back to California to be eaten.”

95. Id. at 47.
96. Id. at 48.
98. Pollan, Farmer in Chief, supra note 53.
99. Id.
100. Id.
Pollan argues that to move to a more sustainable agricultural system, it will be necessary to build the infrastructure for what he calls a “regional food economy.” 101 Such a system will be better able to support diversified farming rather than monoculture farming, and shorten the food chain, thereby decreasing the amount of fossil fuel used to produce and distribute food. 102

Pollan identifies a number of environmental, health, and social benefits of such a system. For example, locally grown food is fresher and requires less processing than food that is shipped long distances. 103 Consequently, locally grown food is more nutritious. Pollan also describes how any efficiency that may be lost by moving to a localized food system will be outweighed by the increased resilience of a regional food system. 104 A resilient system is better able to respond more quickly and effectively to problems to avoid widespread catastrophe. For example, if a large centralized food producer’s processing facility is contaminated by disease, large amounts of food could be contaminated, and the contaminated food could be distributed throughout the United States and beyond before the problem is even detected. If such a contamination occurs in a local production or processing facility, it will be easier to contain the problem and to track and recall any contaminated food that escapes containment.

Pollan proposes a number of steps the government could take to encourage the shift to a more localized or regionalized food system. 105 The government could provide funding to local governments to build year-round indoor farmers’ markets, thereby making local food readily available to the local community. 106 To ensure adequate supply for these local markets, Pollan suggests that the government could provide grants to rebuild local distribution networks. 107 Another of Pollan’s proposals is to establish “Agricultural Enterprise Zones,” in which food safety regulations are appropriately tailored to local food production. 108 Many of the existing food safety regulations are targeted toward minimizing contamination that occurs in large-scale food processing facilities. Small-scale food processing facilities typically do not face the same contamination challenges. Thus, many of these regulations not only are not necessary for small-scale

101. Id.
102. Id.
103. Id.
104. Id.
105. Id.
106. Id.
107. Id.
108. Id.
facilities, but also frequently serve as barriers to the development of local food systems. For example, a farmer in Florida may sell her pecans at a farm stand or farmers’ market without invoking food processing regulations. If, however, that same farmer makes a crack in the pecan shell to make it easier for customers to break through the hard pecan shells (a long-standing practice among Florida pecan growers), she becomes a food processor and must invest in potentially tens of thousands of dollars of equipment to meet food safety regulations. Similarly, it makes no sense to apply the same food safety regulations for “bagged” salad greens, which are sealed in a bacteria-friendly environment and travel long distances over long periods of time before they reach the dinner table, to locally grown unbagged salad greens, which go from the farm to the dinner table in a very short period of time with limited opportunity for bacterial growth to occur. Moreover, as Pollan points out, one of the most serious impediments to moving away from an industrialized confined feedlot livestock system to a local grass-based system is the disappearance of regional slaughter facilities. This is due in part to food safety regulations that prevent most on-farm slaughter and make it difficult for small regional slaughterhouses to turn a profit. Consequently, it is difficult, if not impossible, for small farmers to raise and sell small numbers of grass-fed livestock.

Pollan also suggests establishing a “Strategic Grain reserve” modeled on the “Strategic Petroleum Reserve,” to stabilize the market during times of large price swings and to hedge against a major national or regional food shortage. Pollan also suggests ways to establish a regionalized food procurement system which would provide a ready market for local food growers by ensuring that governments purchase locally grown foods, when available, for public facilities such as schools, prisons, and military bases. Finally, Pollan discusses ideas such as making it easier for food stamp and low income urban dwellers to have access to locally-grown fresh foods.

The essays that follow all deal with one or more issues related to moving toward a more environmentally sound, sustainable, socially equitable, and healthy food system by creating a more localized approach to growing and distributing food. Interestingly and unplanned, the essays all touch on some aspect of Pollan’s proposals, ranging from promoting local slaughterhouses to improving the availability of locally grown healthy foods to food stamp recipients. Some of the essays address the problems

109. Id.
110. Id.
111. Id.
112. Id.
associated with our current large-scale centralized industrialized food system and suggest legal or policy changes that can redress these problems. For example, in the essay, *Overdoing It: The Story of the Agricultural Exemption in United States Antitrust Regulation*, Amelia Timbers describes the current agriculture market, which is dominated by a few large firms and increasingly pushes out small farmers. The essay analyzes the issues through a lens of antitrust law and explores ways in which Congress could create a system in which small local farmers are able to compete in the marketplace. Matthew Walker’s essay, *Exploring Re-regionalization of U.S. Agriculture: A Glance at Vermont Initiatives*, examines some of the negative impacts of our existing centralized industrial food system and explores the benefits and challenges of re-regionalizing the United States agricultural system. This essay looks at some of the efforts being made by the state of Vermont to “decentralize” its food system.

Other essays focus on legal and social barriers to local and urban agriculture and propose ways to overcome these barriers. For instance, Joshua Donabedian’s essay, *Bringing Down the Walls: Addressing Barriers to a New Generation of American Farmers*, examines the problem of the historic loss of young farmers to urban careers and how this trend has led to a shortage of younger educated progressive farmers that will be necessary to reinvent our current agricultural system. This essay explores a variety of mechanisms for overcoming social, economic, and educational barriers to encourage aspiring young progressive farmers to participate in a new decentralized farm economy. Devon Van Noble’s essay, *Alternatives in Land Tenure*, examines the “web of problems” created by dominant models of United States land tenure and suggests options that would provide economic incentives for farmers to use land in ways that employ conservation values while protecting the public’s interest in the long-term productivity of agricultural lands.

Finally, some of the essays describe creative approaches to localizing the food supply currently being taken in certain progressive communities. For example, in his essay *Local Food Currency: An Economic Tool for Community Health*, Erik Phillips-Nania describes the local food currency system that has been successfully implemented in Mendocino County, California, and explains how such a system can improve community health, economic viability, and environmental sustainability. Emily Parish’s essay, *Farm to School Programs*, explores the recent emergence of a multitude and variety of programs throughout the nation that seek to increase the availability of healthy food to children, particularly in low income areas, by establishing systems whereby locally-grown fruits and vegetables are included in school lunch programs. These programs not only provide
nutritional foods to children who otherwise might not have access to healthy food, but also can support small local farmers and provide educational opportunities for students. In her essay, *Farmers’ Markets Take Food Stamps: Making an Impact on the American Diet?*, Jennifer Perez evaluates another approach to making locally grown nutritional foods available to low income citizens. The 2008 Farm Bill established a process by which local farmers selling at farmers’ markets may accept food stamps, thereby making locally grown foods more readily available to food stamp recipients. This essay points out the benefits and challenges of implementing such a program.

**CONCLUSION**

As can be seen from this essay and the essays that follow, there are strong arguments in favor of shifting from our existing centralized industrial agricultural system to a more localized system. This shift will reduce reliance on fossils fuels, which are used to make pesticide and fertilizer inputs and to transport foods long distances, thereby reducing contributions to climate change and decreasing environmental impacts. The shift will also provide social and economic benefits to local communities, improved health and a more sustainable, secure, and resilient food supply. To achieve such a shift, however, it will be necessary to overcome existing legal, economic, and social barriers and to institute new innovative ideas to incentivize and promote local agriculture. Making these changes will be challenging and will require modifications to, among other things, food safety regulations and antitrust laws. It will also require overcoming social, economic, and educational barriers to facilitate the emergence of a new generation of small-scale local farmers. However, as the ideas discussed in the following essays demonstrate, the ability to meet these challenges is only limited by the desire, creativity, and political will to find workable solutions. The essays that follow present some of the creative solutions that are being tried or proposed to meet these challenges.
OVERDOING IT: THE STORY OF THE AGRICULTURAL EXEMPTION IN UNITED STATES ANTITRUST REGULATION

Amelia Timbers∗

INTRODUCTION

Antitrust laws in the United States are designed to produce fair markets via idealized competition. So, when considering the current agricultural market, a system that favors large-scale agricultural operations over small-scale farmers, an observer may ask: what went wrong? This essay investigates the conditions that created the antitrust exemption for agricultural organizations and the exemption’s effects on the current agricultural market.

Congress is excellent at passing legislation designed to address emergencies or temporary social problems, but such laws sometimes remain in effect long after the instigating event has passed, as Congress often fails to amend existing legislation in response to changing political conditions. This leftover legislation can result in skewed policies that produce harmful, unintended consequences over time. The Farm Bill is a prime example of such a detrimentally anachronous law. Passed to mitigate Great Depression poverty, it resulted in policies that radically changed agriculture and nutrition for the following seventy years, long after the Depression’s end.113 Antitrust exemptions have a similar character, continuing to exist despite radically overachieving their purpose.

I. FARMERS STRUGGLE IN THE EARLY 1900S

The exemptions carved out of antitrust laws for agricultural organizations were a specific response to a socio-temporal phenomenon: the exemptions were designed to protect farmers struggling for fair prices against emerging Victorian Era food industrialists.114 Ironically, these

∗ Northeastern University School of Law, Juris Doctor and Master in Business Management expected 2011; Vermont Law School, Master of Environmental Law and Policy expected 2011; UC Santa Cruz, BA in legal studies, BA environmental studies.
exemptions have nurtured the same type of market-power abuse in food markets that they were originally meant to counteract.

During the industrial revolution, the demographic shift from small localized farming communities to industrial production in urban centers created new demand for processed food in cities. Farmers did not transition smoothly, and found it difficult to price crops for markets they knew little of and from which they were hundreds of miles. Baumer writes that “the development of urban centers disrupted [direct sales to consumers] and middlemen emerged to take over the intermediate steps between harvest and market—transportation, sorting, processing, and retail sales to consumers.” Farmers’ vulnerability was further amplified by the lack of refrigeration; farmers were forced to sell crops for whatever price was offered, rather than let the crops rot for a total loss. While these turbulent changes occurred in farming, a second food transition was occurring in the urban centers. Olson explains that “[t]he Industrial Revolution . . . brought about a revolution of its own in food processing, and the size and power of the major food processing companies created demands for government regulation.”

The food processing industry was exploitive, maintaining unsanitary, feudalistic operations famously characterized by Upton Sinclair in *The Jungle*. Various problems with processing procedures and factory conditions spawned the first public health laws: 1906 saw the passage of the Meat Inspection Act and the Pure Food and Drug Act. Approximately a decade later, the nation was preparing for World War I and seeking to incentivize food production, and did so with the Food and Fuel Control Act of 1917. Agricultural antitrust exemptions emerged at this juncture, with exemptions in 1916’s Clayton Act and 1922’s Capper-Volstead Act.

115. Id.
116. Id. at 186–87.
117. Id. at 186.
118. Id. at 187.
II. STATUTES PROTECT FARMER CO-OPS

In response to the market power exercised by urban food processors, and in the context of burgeoning national labor and unionization movements, farmers banded together into co-ops. The co-ops served to enhance businesses, facilitate distribution, and to act defensively. However, these co-ops posed a legal problem for newly enacted antitrust laws: the co-ops exhibited the very anticompetitive behavior antitrust laws were meant to quash, and they faced litigation as a result.

To solve this problem, Congress exempted agriculture from antitrust laws, justifying the action as defense of small farms from industrial processors and intermediaries. The most formative of these exemptions is found in section 17 of the Clayton Act, which states:

Nothing contained in the antitrust laws shall be construed to forbid the existence and operation of labor, agricultural, or horticultural organizations, instituted for the purposes of mutual help, and not having capital stock or conducted for profit, or to forbid or restrain individual members of such organizations from lawfully carrying out the legitimate objects . . . .

This section of the Clayton Act was very successful, and spurred rapid growth of the farming co-ops it protected. In 1922, the Capper-Volstead Act clarified the Clayton Act by offering definitions of “legitimate” farming activities, and expanded the type of protected businesses to include those that issued equity, thus protecting corporations. Four years later in 1926, the Capper-Volstead Act was extended to legalize behavior that would otherwise constitute collusion and price fixing (antitrust’s per-se...
anticompetitive behavior). 129 Under Capper-Volstead, agricultural co-ops were allowed to share pricing information and data if it did not “unduly enhance” prices. 130 The result of these laws has been to effectively waive serious antitrust litigation in agriculture for half a century.

III. CO-OPS GROW INTO ANTICOMPETITIVE BUSINESSES

Thus, Congress created “ideal growing conditions” for consolidation in the agricultural sector by using regulations to mute legal and market based limiting factors. The 2010 commodities market now comprises less than a dozen firms producing less than a dozen crops, and in 2009 it received the majority of $15 billion in United States agricultural subsidies to do so. 131

<table>
<thead>
<tr>
<th>Product/Industry</th>
<th>Number of Firms</th>
<th>Percent of Market Share Represented</th>
<th>Companies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dairy</td>
<td>4</td>
<td>≈100%</td>
<td>Dean Foods, Kraft, Leprino, Dairy Farmers of America</td>
</tr>
<tr>
<td>Corn seed</td>
<td>2</td>
<td>58%</td>
<td>Monsanto, DuPont</td>
</tr>
<tr>
<td>Corn</td>
<td>3</td>
<td>90%</td>
<td>Archer Daniels Midland, Bunge, Cargill</td>
</tr>
<tr>
<td>Beef</td>
<td>3</td>
<td>&gt;80%</td>
<td>JBS Swift, Tyson, Cargill</td>
</tr>
<tr>
<td>Pork</td>
<td>4</td>
<td>66%</td>
<td>Smithfield, Tyson, Cargill and JBS Swift</td>
</tr>
<tr>
<td>Poultry</td>
<td>4</td>
<td>60%</td>
<td>Pilgrim’s Pride, Tyson, Perdue and Sanderson Farms</td>
</tr>
</tbody>
</table>

| Totals: Twenty firms in six industries produce sixty to one hundred percent of U.S. commodities. |

Table 1: 2010 Agricultural Market Share 132

The trend toward consolidation is both nurtured and magnified by a negative feedback cycle of capital. Agricultural consolidation resulted from subsidies and antitrust protection. Yet the same factors that allowed

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130. Baumer et al., supra note 114, at 202.
agribusiness firms to concentrate market power also perpetuate the firms’ existence. One strategy for maintaining the status quo is lobbying for it, and in 2010 agribusiness invested nearly $38.5 million in political contributions. Thus, Congress’ subsidy and antitrust protection, originally designed to protect small farmers, now has the effect of not only pushing them out of the market, but keeping them out.

Small farmers are being eliminated, and quickly. A 2009 GAO study for Senator Grassley showed that while the reasons for the decline of medium and small independent farms are numerous, the effect is single: increasing concentrations of agricultural subsidies and profits to firms like those named in Table 1. The report suggests that the trend accelerated during the recession in the 1980s, when farmers buckled under high debt and low crop prices. It also found that “less than 2 percent of farms accounted for 50 percent of total sales in 2007.” Similarly, and echoing the findings in Table 1, “beef, pork, poultry, dairy, and grains . . . accounted for 86 percent of the total market value of food-related agricultural products sold by farms in 2007.”

This consolidation of food producers and sources has not harmed consumers financially; food prices have remained stable relative to inflation since the 1980s. Outward price stability, coupled with the systematic capital starvation of small farms, has had the effect of limiting public outcry. Even when consumers are being gouged by agribusiness, as in the mid-nineties Archer Daniels Midland lysine scandal, the theft is so diffuse, representing fractions of cents from individual consumers per purchase in an international market, that the effect is often known only to insiders. The ADM lysine scandal aptly illustrates another result of excessive market power: third parties and regulators are unable to accurately gauge the total harmful effects and illegal activities of consolidated firms. Thus, the antitrust protection extended by Congress has,

135. Id.
136. Id.
137. Id. at 7.
138. Id. at 14.
over time, morphed into a de facto waiver of antitrust regulation of agribusiness altogether.

IV. YET—IS AGRIBUSINESS ON THE RUN?

Nonetheless, there are at least three reasons to think that agribusiness will not survive much longer in its current form, even with antitrust protection and subsidy cash flows.

A. Health

Although consumers may not have paid literally for the costs of agribusiness monopolization, they have paid in the form of their health. In the last twenty years, record setting rates of obesity, cancer, diabetes, and the associated health care cost increases have produced a great awakening for consumers regarding their food.140 Center for Disease Control data shows a progression of obesity rates from approximately fourteen percent or less in all reporting states in 1985 to twenty percent or greater in nearly all states by 2008.141 Notably, this is the same period during which farming became agribusiness. In response to these personal health crises, consumers are becoming increasingly interested in their food’s sourcing, ingredients, toxicity, and nutritional value. This consumer awakening is still in its early stages, but has already created increased demand for affordable organic food and vegetables, as well as drawn criticism of the agribusiness system that works against healthful farming.

B. Politics

President Obama has demonstrated interest in regulating agribusiness via antitrust regulations despite its donations to the Democratic Party. Under Obama, the DOJ has launched a series of public workshops to discuss agriculture antitrust with stakeholders.142 Meanwhile, dairy and meat are both facing increased Capper-Volstead scrutiny. Obama’s DOJ has

141. Id.
launched a federal probe of the dairy industry, while the USDA has proposed new antitrust rules on the meat industry. Further, Michelle Obama has made childhood obesity her personal issue, and she had a vegetable garden planted at the White House (much to agribusiness’ ire; industry associations protested it).

C. Resource Constraints

Large-scale, consolidated agribusiness depends on inexpensive fossil fuels and unlimited water supply, both commodities that are widely understood to be rapidly diminishing. A major oil supply disruption, for any reason, resulting in a “peak oil” scenario would have a serious effect on consolidated agribusiness. In such a case, no amount of market power will be able to mask price increases.

V. Why Wait? A Silver Bullet Policy to Enact Now

Despite agribusiness’ strong lobbying presence, Congress could easily accelerate the death of consolidated agribusiness by limiting access to federal subsidies and antitrust protection to farms and co-ops a) not owned by a parent company and b) with an annual net income below $500,000. This would restrict antitrust and subsidy benefits to actual small farmers. One USDA study showed that forty-five percent of farming activity in 2003 occurred on farms with a net income above $500,000, up thirteen percent from its 1989 concentration of thirty-two percent of activity. The same

147. Norman Church, Why Our Food Is So Dependent on Oil, ENERGY BULL. (Apr. 1, 2005), http://www.energybulletin.net/node/5045.
study showed that subsidies were shifting toward high net income farms.\(^\text{149}\) A policy limiting subsidies and antitrust protection to small farms would provide the competitive advantage for small farms to stay in business, disincentivizing commodity crop farming, and such a policy would give the government the tools to wind down the farming conglomerates that are currently stifling agriculture markets.

**CONCLUSION**

Legislation exempting agriculture from antitrust regulation became superfluous after 1950. With the conclusion of the Depression and World Wars I and II, the 1950s would have been an ideal time to unravel agricultural exemptions. Unfortunately, 1950s culture was infatuated with science, progress, and technology, all embodied by industrialized farming. Congress’ failure to alter United States agricultural antitrust exemptions since the 1950s has resulted in the demise of small-scale farming operations and an increase in health problems significantly correlated with nutrition. It is unclear what portion of the blame for the current United States public health crisis should be attributed to agribusiness’ continued antitrust exemptions, but despite this gloomy retrospective, increasing consumer awareness, political scrutiny, and diminishing environmental quality provide reason to hope for changes to United States agricultural antitrust exemptions in coming decades.

**EXPLORING REGIONALIZATION OF UNITED STATES AGRICULTURE: A GLANCE AT VERMONT INITIATIVES**

*Matthew J. Walker*

**INTRODUCTION**

In the article, *Farmer in Chief*, leading expert Michael Pollan examines what is needed for our “21\textsuperscript{st} century food system.”\(^\text{150}\) Pollan attempts to

\(^{149}\) *Id. at 3–4.*

\(^{150}\) Pollan, *Farmer in Chief*, supra note 53.
answer this broad question by stating that “policies should aim to improve
the resilience, safety and security of our food supply . . . [by] promoting
regional food economies.”

Pollan suggests that there is a need to re-
regionalize the US agricultural system and this leaves one to question
how re-regionalization is possible in a national and multi-national web of
food control. What obstacles get in the way of achieving a secure, local
food supply? Why is our government making it hard for small-scale farms
to exist?

While researching the present-day climate within the United States’
aricultural policy system, it becomes clear that our national system is
based on supporting large-scale, industrial agriculture, instead of small-
scale farms. This has created numerous economic, environmental, and
health problems. For example, it has been found that industrial agriculture
contributes up to thirty-seven percent of greenhouse gases due to its
dependency on fossil fuel, which is used for transportation of food,
production of pesticides and fertilizers, mass irrigation, and other fossil fuel
draining practices.

Since World War II, there has been a dramatic shift away from the
“family-owned farm” to large commodity farms, which produce the
majority of our country’s corn, soybean, cotton, and grain, otherwise known
as “commodity crops.” Not only has our government’s legislation
supported this shift towards industrial farming, it is vital to acknowledge
that America’s large-scale farms would not exist without government
subsidies and cheap fossil fuel. It appears that valuing small, local farms
has become an outdated American cultural value and as Joel Salatin states
in his article, Everything I Want To Do Is Illegal, “Our whole culture suffers
from an industrial food system that has made every part disconnected from
the rest.”

When exploring how re-regionalization can be made possible, Pollan
offers multiple ways that our nation and communities can begin to create
positive changes within our current food system. Pollan asserts that one
option is to create “Agricultural Enterprise Zones,” where farmers are
regulated proportionally, based on the size of their operation.

151. Id.
152. Id.
153. See Eubanks, A Rotten System, supra note 6, at 228–30 (discussing how the Farm Bill’s
subsidy program destroyed small, family farms, while promoting large, industrial farms).
154. Angelo, Corn, Carbon, and Conservation, supra note 5, at 598–600.
155. Pollan, Farmer in Chief, supra note 53.
156. Joel Salatin, Everything I Want to Do is Illegal, MINDFULLY.ORG (Sept. 1, 2003),
states, “Food-safety regulations must be made sensitive to scale and marketplace, so that a small producer selling direct off the farm or at a farmers’ market is not regulated as onerously as a multinational food manufacturer.” This perspective appears to be one way to change our system, which has put small-scale farmers at the disadvantage due to strict farming regulations. For example, it does not seem appropriate to place the same regulations on small farms that process 100 chickens per week as are placed on large farms that process hundreds or even thousands of chickens per day, because the amount of potential environmental contamination differs greatly.

Another suggestion Pollan offers as a way to re-regionalize is to create a “Local Meat-Inspection Corps.” Pollan states, “Perhaps the single greatest impediment to the return of livestock to the land and the revival of local, grass-based meat production is the disappearance of regional slaughter facilities.” Pollan explains that “big meat processors” are currently “buying up local abattoirs only to close them down as they consolidate, and the U.S.D.A. does little to support the ones that remain.”

The owner and farmer of Mount Pleasant Farm, in Tunbridge, Vermont, appears to be the perfect real-life example of what Pollan describes. While talking with the farmer on June 24th, 2010 at the South Royalton Farmers’ market, he explained that he recently bought 200 ducklings that he wanted to eventually slaughter himself on his farm, which he would then sell to a local restaurant owner, who had previously purchased his duck meat from a source in Boston. This farmer was attempting to re-regionalize the duck industry; however, after making his initial investment, he discovered that because he did not have an approved inspected facility, he could not slaughter the ducks on his farm, as he routinely does with chickens. The nearest slaughterhouse for ducks was in upstate New York, and after considering the expenses associated with the transportation of 200 ducks, he realized he could not travel that far and still make a profit. As a result,

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158. Id.
159. See id. (arguing that food safety standards must be “sensitive to scale and marketplace” because contamination problems arising from small producers are “less catastrophic and easier to manage because local food is inherently more traceable and accountable”); Understanding the Poultry Processing Provision for Bill H522, RURAL VT., http://www.ruralvermont.org/poultry.html (last visited Feb. 4, 2011) [hereinafter Poultry Processing Provision] (explaining provisions of the 2007 “Chicken Bill” generally and providing direct links to the final version of the bill).
160. Pollan, Farmer in Chief, supra note 53.
161. Id.
162. Id.
the farmer had to accept a loss on his initial investment and was forced to sell his ducklings at half the price for which he bought them.\textsuperscript{163}

Similarly, Alison Purcell, who is a farmer in Charlotte, Vermont, is prohibited from selling meat that is processed on her land. Purcell does not have an inspected facility, nor does she have a big enough enterprise to warrant investing in an inspected facility. Without any other options, Purcell sends her livestock, primarily sheep, to be processed at a slaughterhouse, which she states is her biggest expense and is not a sustainable way to make a profit for years to come.\textsuperscript{164}

Pollan further describes that the USDA believes that it is a better use of resources to “to dispatch its inspectors to a plant slaughtering 400 head an hour than to a regional abattoir slaughtering a dozen.”\textsuperscript{165} Consistently trying to find ways to cut its expenses, the USDA streamlines the inspection process, which has multiple negative impacts. Not only does this streamlining affect the local economy, but it also results in the loss of jobs, farmers’ livelihoods, and the ability for local communities to provide their own food supplies. Furthermore, when one considers the expense of shipment costs from a centralized source out to communities across the country, it leads one to wonder if this system is actually saving money in the long run. Pollan states that “[t]he local-food movement will continue to grow with no help from the government, especially as high fuel prices make distant and out-of-season food, as well as feedlot meat, more expensive.”\textsuperscript{166}

Pollan suggests the establishment of a Local Meat-Inspectors Corps is needed in order to allow smaller slaughter facilities to continue to operate.\textsuperscript{167} This would shift the current national inspection system to a regionally controlled inspection system, which would allow the resources and costs that local farmers expend to process their food to significantly decrease. If what Pollan is suggesting came into fruition, farmers like Allison Purcell may begin to feel supported, rather than hindered by the system.

While the climate within the United States values large-scale farms, it appears that there are pockets within the United States that are aspiring to do differently. Grassroots organizations and advocacy groups throughout the country are working hard to shift the predominant way of farming. Within the state of Vermont, these advocacy groups are committed to being vocal about the negative impact of industrial agriculture and are trying to

\textsuperscript{163} Interview with Owner, Mount Pleasant Farm, in South Royalton, Vt. (June 24, 2010).
\textsuperscript{164} Interview with Alison Purcell, Farmer, in South Royalton, Vt. (June 24, 2010).
\textsuperscript{165} Pollan, Farmer in Chief, supra note 53.
\textsuperscript{166} Id.
re-establish a system, which honors local agriculture, and in-turn, allows local farmers to profit and make farm-fresh-food more accessible. This effort toward positive change is reflected in some of Vermont’s current agricultural policies; however, it is clear that national regulation makes it hard for significant progress to be made.

One example of Vermont’s attempt to take action on re-regionalizing its state’s agriculture is the recent passing of the “The Farm to Plate Initiative,” which is part of House Bill 313. This initiative seems to reflect Vermont’s commitment to reach for high standards because the overall mission of this initiative is to require that at least twenty percent of Vermont’s food supply is being produced by local farmers by the year 2020. The initiative has a two-fold agenda: not only is it strategically planning for a twenty percent local food supply, it is also looking to the Vermont Sustainable Jobs Fund to create an economic development plan for Vermont agriculture in the hopes of establishing a food industry that is able to raise and distribute sufficient funds to support continued economic success.

While this initiative may appear unrealistic given our centralized food system, and skeptics may question if Vermont has set an unreachable goal, it appears that significant efforts, hard-work, collaboration, and legislation may secure progress towards the twenty percent goal. One example of Vermont’s current effort toward meeting this goal is reflected in legislation passed in 2007, which granted farmers the ability to sell up to 1000 slaughtered chickens per year at local farmers’ markets and restaurants. Before 2007, Vermont prohibited the selling of chickens that had been slaughtered on farms to restaurants and at farmers’ markets without inspection. The negative impact of this meant that until the passage of the new legislation in 2007, farmers had to out-source the slaughtering of their poultry, which is very costly, causing a farmer’s actual profit to be significantly reduced.

Similarly, the passage of the 2009 “Unpasteurized (Raw) Milk Bill” into law allows farmers to sell raw milk, which has become a sought after product that has continued to increase in demand. The new standard allows farmers to sell up to fifty quarts per day with limited regulation.

169. Id.
170. VT. STAT. ANN. tit. 10, § 330 (2009); Farm to Plate, supra note 168.
standards, and also permits the solicitation of up to forty gallons with slightly more stringent standards. Furthermore, this legislation finally allows farmers to advertise and deliver raw milk, which surprisingly had been previously illegal. Rural Vermont is one advocacy group in Vermont that appears to be working hard to remove unfair and costly agricultural regulatory barriers and has played a significant role in “The Farm to Plate Initiative,” the unpasteurized (raw) milk legislation, and the 2007 poultry legislation.

While some organizations in Vermont are making great efforts to create a local food economy, they continue to persevere in an uphill battle against the national forces of agriculture that remain steadfast. While the concepts and current issues of the national and local agricultural system have a number of complexities and details not presented in this essay, this is an initial attempt at understanding how to support changes within the agriculture system in the United States. In conclusion, farmer, activist, and writer, Joel Salatin states,

Society seems bound and determined to hang me for everything I want to do. But there’s power in truth. And for sure, surprises are in store that may make society shake its collective head and begin to question some seemingly unalterable doctrines. Doctrines like the righteousness of the bureaucrat. The sanctity of government research. The protection of the Food Safety and Inspection Service . . . .When that day comes, you and I can graciously offer our society honest food, honest ecology, honest stewardship. May the day come quickly.
BRINGING DOWN THE WALLS: ADDRESSING BARRIERS TO A NEW GENERATION OF AMERICAN FARMERS

Joshua B. Donabedian

INTRODUCTION

The catch is that we cannot live in machines. We can only live in the world, in life. To live, our contact with the sources of life must remain direct . . . . When we let machines and machine skills obscure the values that represent [our] fundamental dependencies, then we inevitably damage the world; we diminish life. We begin to “prosper” at the cost of a fundamental degradation.

—Wendell Berry

As the number of American farms peaked at 6.8 million following the Great Depression, the production of any given farmer could feed roughly fifteen people. Since then, the number of farms has declined by more than seventy percent while the increased demand of a growing population has been met, and far exceeded, by large-scale mechanization, improved crop varieties, and commercial fertilizers and pesticides. As agricultural labor efficiency has grown from 27.5 acres per worker in 1890 to 740 acres per worker in 1990, the corresponding decline in need for human labor is evident. Vertical integration and commercialized agriculture has brought the industry to the point to where now less than one percent of the United


179. Eubanks, A Rotten System, supra note 6, at 229.

States population is considered to be a farmer.\textsuperscript{181} Today one farmer now has the ability to feed over 140 mouths.\textsuperscript{182}

Reforming American agriculture to the scale that this country desperately needs starts with a new generation of young American farmers. In a 2008 \textit{New York Times} editorial, Michael Pollan writes, “[t]he sun-food agenda must include programs to train a new generation of farmers and then help put them on the land . . . . We need more highly skilled small farmers in more places all across America.”\textsuperscript{183} However, significant barriers stand in the way of the new farmers seeking to regain control. These barriers can be considered under four distinct policy categories: capital, land, training, and markets,\textsuperscript{184} and must be recognized, understood, and addressed on a national level. Funding must be provided to organizations dedicated to promoting this “new” system of agriculture and training, educating, and supporting the young, motivated new generation looking to take the reins.

I. THE BARRIERS: PROVIDING ACCESS TO THE TOOLS NEW FARMERS NEED

\textit{A. Capital and Credit}

Financial concerns are possibly the biggest hurdle to young, aspiring farmers today. Many new farmers have low equity and strapped by limited resources. High land prices and a variety of start-up costs make it increasingly difficult for new farmers to establish themselves. When considering the current economic downturn, it is easy to see why traditional lenders are particularly reluctant to provide them loans. Moreover, beginning farmer loan programs are too few and inadequately funded.

In a lengthy evaluation of United States farm and food systems, Ken Meter identified rural communities with their own supply of credit, sufficient to cover all costs of farm production, as a key indicator to a healthy farm economy.\textsuperscript{185} In 1950, a time regarded as a “healthy” period for farm economics, national aggregate farm debt was about six billion

\begin{footnotesize}
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\item \textsuperscript{181} Id.
\item \textsuperscript{182} Ben Hewitt, The Town That Food Saved: How One Community Found Vitality in Local Food 43–44 (2009).
\item \textsuperscript{183} Pollan, Farmer in Chief, supra note 53.
\item \textsuperscript{185} Kenneth A. Meter, Evaluating Farm and Food Systems in the U.S., in Systems Concepts in Evaluation: An Expert Anthology 141, 141–43 (Bob Williams & Iraj Imam eds., 2006).
\end{itemize}
\end{footnotesize}
dollars.\textsuperscript{186} By 1985, and on the verge of another “farm crisis,” this number had grown to a massive $222 billion.\textsuperscript{187} The numbers don’t lie; strong, responsive local credit sources are an important key to healthy farm economies and vibrant rural communities.

The number of aspiring new farmers is continuing to increase, and access to adequate capital and credit must be available to get them started. Government policy should be reconsidered to focus on creating non-debt options to accessing capital and devising new financing options available to new farmers. Increased federal funding for new farmer loan programs will enhance the efficacy of such programs.\textsuperscript{188} In the meantime, it is important that organizations currently providing this support to new farmers are recognized and remain viable until federal funds start to flow.

Slow Money Alliance is an organization dedicated to investing in local farm economies and sustainable food production.\textsuperscript{189} Part of Slow Money’s mission is to develop local and national networks dedicated to investing in appropriate-scale organic farming and local food systems.\textsuperscript{190} The “Slow Money Principles” include “bringing our money home to build sustainable communities” and learning “to invest as if food, farms and fertility mattered . . . We must connect investors to the places where they live, creating vital relationships and new sources of capital for small food enterprises.”\textsuperscript{191} Through organizations such as Slow Money, new farmers can obtain the financial support needed to start and maintain their farm and gain comfort and security in their business operations.

\textbf{B. Land}

Capital and financing issues aside, accessing land for new, sustainable farming operations is another challenge many new farmers face. As Midwestern farm heirs have fled the fields, fewer family farms are being passed down to subsequent generations.\textsuperscript{192} As the United States loses an average of two acres of farmland per minute,\textsuperscript{193} this traditional method of

\begin{footnotesize}
\begin{itemize}
\item[186.] Id. at 143.
\item[187.] Id.
\item[188.] RUHF, supra note 184.
\item[190.] Id.
\item[191.] Id.
\item[192.] Jen Hashley, Cultivating and Sustaining the Next Generation of Food Producers, GOODEATER COLLABORATIVE (June 7, 2010), http://www.goodeater.org/2010/06/07/cultivating-and-sustaining-the-next-generation-of-food-producers/.
\item[193.] Id.
\end{itemize}
\end{footnotesize}
farm succession is no longer adequate to satisfy current realities. Aging farmers with an eye toward retirement either have no or poor succession plans in place while new farmers struggle to locate and obtain valuable farmland. Furthermore, current tax policies inhibit the smooth transfer of farms from the aging farmers of today to the younger farmers of tomorrow.

To ensure farm succession over sale and commercial development, a number of things must happen. First, the federal tax code must be amended to facilitate more efficient intergenerational transfer of farms and farmland. Programs must also be developed to support and assist retiring farmers with succession and tenure planning. Conservation easements and land trusts are excellent ways to ensure protected farmland remains exactly that. Most important however, “farm link” programs that connect young and old generations must be funded and expanded.

California FarmLink (CF) is an organization that enables dialogue between exiting and entering farmers and educates on farm transfer options and keeping agricultural lands productive. To achieve its mission of building family farms and conserving farmland, CF links aspiring and retiring farmers and disseminates information that facilitates intergenerational farm transitions. In the years to come, roughly 400 million acres of farmland will be sold or transferred to subsequent generations. Keeping this land in the hands of young, sustainable farmers is essential. Increased funding and support for such programs is necessary for this to happen.

C. Education and Training

America is slowly losing its ability to produce food and traditional methods for information, knowledge, and skill transfer are no longer adequate to meet the needs of new farmers. Agricultural extension budgets are being slashed and agricultural educations at land-grant universities have developed to focus much more on specialty careers than

194. Id.
195. RUHF, supra note 184.
196. Id.
198. Id.
200. Hashley, supra note 192.
food production as a whole. As a result, aspiring new farmers have difficulty locating training opportunities in sustainable, organic agricultural methods. Through competitive grant programs, universities can revamp agricultural education. Comprehensive beginning farmer development programs, as well as mentoring and apprenticeship programs, should be established and developed to address these issues. Additionally, farm and agricultural business incubators are an alternative with potential to be the all-encompassing solution.

“Incubator” operations provide aspiring farmers the opportunity to own and operate their small-scale farm business at low or no cost, thereby gaining practical experience. Farmers receive extensive classroom and experiential education, and the proper operational, financial, and business training to “spin-off” from the incubator and establish their own business. The organization is there to share costs, provide assistance, and ease the burden at each step along the way. With the proper educational curriculum in place, prospective start-up farmers set out on a path for success from day one, creating vacancies at the incubator for more farmers to follow along in their footsteps.

The Intervale Center in Burlington, Vermont serves as a national model in this regard. In creating opportunities for new farmers and removing many of the educational and operational barriers they face, The Intervale Center is a key player in strengthening its surrounding community food system. It is absolutely essential for farm incubators such as this to develop a comprehensive educational curriculum on all aspects of sustainable farming and agricultural production. This curriculum must provide prospective farmers with an understanding of the chain of food and agricultural production, from the fields to our forks. Courses on soil management, harvesting, and packaging to business planning, marketing, and even legal contracts should be included. A comprehensive knowledge of the economic processes of food and agricultural production are necessary for the success of our farmers within the new type of food systems our future inevitably holds in store.

201. Id.
202. RUHF, supra note 184.
There is little incentive to begin a career in farming without viable local markets and public demand. Any hope of fixing a broken food system depends on an inspired new generation of farmers, which, in turn, hinges on a solid economic infrastructure and a reawakened cultural vitality that is necessary to surround and support them. In facing barriers to accessing markets and joining local farmer cooperatives, even the most motivated beginning farmers become easily frustrated. Confounded with the lack of availability and inadequacy of marketing assistance and customized risk management strategies, new farmers struggle to produce an economic return sufficient to cover costs and provide for a decent quality of life.

If provided with the right marketing and business assistance, new farmers will be aided in understanding, addressing, and overcoming these barriers. Non-profits such as the National Young Farmers Coalition and The Greenhorns provide support while facilitating the relationships and the connections to resources that new farmers need in order to cultivate successful, sustainable farms. As the local, sustainable food movement continues to grow, an increasing number of these programs must be established, funded, and made available. The services, communication, and marketing resources such organizations offer are invaluable. Without adequate support networks, a new generation of farmers will remain stuck in the struggle to compete with mega-farms and multinational corporations.

Yet, all the support and resources in the world will not make a difference if the market for organic, sustainable food is weak and demand is low. The real key to viable markets and increased consumer demand is public education and awareness. There are three main factors that contribute to successful, organic, sustainable farming operations: a rising consumer demand for local and organic produce, a large and nationwide increase in farmers’ markets, and growing popularity of community-supported agriculture programs. It all starts from the bottom-up. If the American public can be exposed to the realities behind a food system subsidized with

206. RUHF, supra note 184.
207. Id.
their tax dollars, consumer behavior will begin to change. Eventually the demand for organic and more environmentally-friendly food products will take over, farmers’ markets will continue to spread, small-scale family-style farms will begin to pop up across the American countryside, and rural communities and local food systems will regain a lost vitality.

CONCLUSION

An industrial farming chain that has become addicted to fossil fuels and gross overproduction is far from sustainable in light of the threats that climate change and energy dependence pose. For any real changes to be seen and gains to be made, direct federal involvement with and subsidization of agriculture must be addressed. As the destruction of family farming and rural depopulation is one of the most direct consequences of the Farm Bill’s commodity subsidy program, Farm Bill policy must be reversed and restored to the days where small farmers were protected and sustainable production was promoted. For the necessary funding to exist and flow to the right sources, the public must be educated on these issues, which affect their everyday lives. When the reality of our food production system is widely known and understood, the public will respond and habits will change. When America knows and demands the changes we need, politicians will react, policy will improve, and progress will be made. Our agricultural policies have forced farmers out of the fields. Now the policies need to be realigned to encourage the farmers to head back. The machines of today must be replaced with the farmers of tomorrow: for a healthy economy, for a healthy harvest, and for a healthy environment.

211. Eubanks, A Rotten System, supra note 6, at 270.
212. Id. at 228.
ALTERNATIVES IN AGRICULTURAL LAND TENURE

Devon Van Noble∗

INTRODUCTION

One of the primary challenges in modern United States agriculture is the lack of availability of suitable, affordable land for aspiring young farmers. The loss of arable lands to urbanization and environmental degradation, combined with rising property values, has made access to suitable agricultural property very difficult. A significant barrier to access to suitable land is the limited forms of land tenure available to farmers. Presently, two distinct forms of land tenure exist in the United States. One is premised upon full ownership of land by farmers themselves; and the alternative, tenancy, often brings together landowning individuals and farmer-operators in short-term rental arrangements.213 Alone, these two traditional models of land tenure can limit a community’s ability to craft individually appropriate ownership arrangements that protect the long-term public interest in American farmland and maintain stewardship of agro-ecosystems across the nation. However, the drive to create alternative ownership options has resulted in some innovative agreements, which have allowed private equity funds, state and municipal governments, community supported agriculture (CSA) members, land trusts, as well as community members to share some of the rights and responsibilities associated with agricultural land tenure, along with traditional landowners and farmers. Creating agriculturally-restricted conservation easements and long-term ground leases involving socially-minded landowners exposes further shades of gray between the concepts of full ownership and short-term tenancy. Utilized in combination with traditional forms of ownership and tenancy, these new relationships between public and private parties may serve to improve the long-term stewardship of agricultural lands at all scales.214

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213. EQUITY TRUST, INC., PRESERVING FARMS FOR FARMERS: A MANUAL FOR THOSE WORKING TO KEEP FARMS AFFORDABLE 1–3 (2009).

214. A similar argument can be found in many of the sources cited herein. However, a key collection of essays surrounding precisely these ideas can be found in: PROPERTY AND VALUES: ALTERNATIVES TO PUBLIC AND PRIVATE OWNERSHIP (Charles Geisler & Gale Daneker eds., 2000) [hereinafter PROPERTY AND VALUES].
I. LAND TENURE SYSTEMS

Land tenure describes who can use what resources and land, in what ways they can use them, and for how long.\textsuperscript{215} The terms of these ownership agreements may either be strictly enforceable or loosely defined.\textsuperscript{216} In addition to defining a landowner’s use of property, tenure describes the rights and responsibilities that a landowner may retain or pass on according to a lease.\textsuperscript{217} Property law experts use the “Bundle of Rights”\textsuperscript{218} approach to address these distinct aspects of tenure arrangement in each case of property ownership. If each right is a stick in the bundle, the assortment of sticks in the bundle includes rights such as the right to development, the right to water and air, the right to sell or lease, the right to occupy the land, and the right to exclude others from the land.\textsuperscript{219} While a landowner may hold most of the rights associated with a given property (known as owning the land “in fee simple”), there are always rights retained by government, notably the right to taxation, the ability to regulate, and the right to eminent domain.\textsuperscript{220} Thus, there are generally limits to property ownership, for even as a full owner in the United States one does not have ultimate authority and control over his or her land. However, the limits to ownership vary significantly from case to case, and the qualitative and quantitative differences of tenure arrangements have important implications for farmers, agricultural communities, and the general food-consuming public.

The modern understanding of tenure in the United States has been passed from Western European feudalism to the founding fathers of our nation, and into almost all United States agricultural policy since the nation’s inception.\textsuperscript{221} This understanding has commonly treated land ownership as an exclusive right, and tends to assume that all rights should be held completely by the landowner, because only those individuals with a vested, long-term interest in a parcel of land will make it productive and care for it. This logic is embodied in statutes like the Homestead Act of

\begin{itemize}
\item \textsuperscript{215} FarmLASTS Project, Agriculture Land Tenure: A Curriculum for Beginning Farmers and Farm Seekers 3 (2010), available at http://www.uvm.edu/farmlasts/FarmLASTSAgLandTenure.pdf.
\item \textsuperscript{216} Id. at 13.
\item \textsuperscript{217} Id.
\item \textsuperscript{218} Annette Higby et al., Holding Ground: A Guide to Northeast Farmland Tenure and Stewardship 3 (Miranda Smith ed., 2004).
\item \textsuperscript{219} Id.
\item \textsuperscript{220} Equity Trust, Inc., supra note 213, at 3.
\item \textsuperscript{221} FarmLASTS Project, supra note 215, at 4.
\end{itemize}
1862,\textsuperscript{222} which was intended to divulge a massive amount of public land to private landholders in order to ensure the best utilization and stewardship of the land.\textsuperscript{223} However, a few decades after the enactment of the Homestead Act, the Roosevelt administration’s 1937 report on United States land tenancy revealed that the Dust Bowl and the Great Depression caused landlessness and poverty for many farmers.\textsuperscript{224} In 1940, forty percent of agricultural lands were being tilled by tenant farmers rather than landowners.\textsuperscript{225} The federal agricultural agency at the time, the Farm Security Administration (FSA), attributed the increasing environmental and social problems associated with agriculture to the prevalence of absentee ownership.\textsuperscript{226} In response to these problems, the FSA proposed “[l]and ownership . . . as the best way to conserve agricultural resources and promote economic democracy.”\textsuperscript{227}

II. IMPLICATIONS OF LAND TENURE ON AGRICULTURE

The classic belief that full ownership (as a private, exclusive right) is essential for proper stewardship of land and a rewarding return for the farmer, has seemingly created a boom-and-bust pattern in land tenure over United States history. Full ownership has been prevalent for periods, as it was during 1980s financial reform, which popularized highly-leveraged farm mortgages and capital loans. However, the cost of ownership can become infeasible for farmers, at which point they commonly find tenancy through one to five year leases with landowners, or stop producing altogether.\textsuperscript{228} The serious limitations of this conception of property ownership have left a situation in which Americans presently rely on two predominant forms of land tenure: full ownership (fee simple) by farmers and short-term lease agreements.\textsuperscript{229}

For farmers who can afford or access credit, financing the fee simple purchase of land by going into debt seems sensible, because the farmer

\textsuperscript{222} Homestead Act of 1862, ch. 75, 12 Stat. 392 (repealed 1976); FARMLASTS PROJECT, supra note 215, at 5.
\textsuperscript{223} Homestead Act of 1862, ch. 75, 12 Stat. 392 (repealed 1976).
\textsuperscript{224} HIGBY ET AL., supra note 218, at 5–7.
\textsuperscript{225} Id.
\textsuperscript{226} Id.
\textsuperscript{227} Id. at 7.
\textsuperscript{228} See FARMLASTS PROJECT, supra note 215, at 6 (stating that land ownership for farmers often ended when loan repayment became impossible).
\textsuperscript{229} EQUITY TRUST, INC., supra note 213, at 1–3; see also Joseph William Singer, Property and Social Relations, in PROPERTY AND VALUES, supra note 214, at 3, 15 (considering the important features of property that are obscured by the classical ownership model).
wants the freedom of use associated with full ownership, such as the security to continue using his property after making investments and building a life around his property. To many farmers in the United States, it is preferable to have the control associated with full ownership and go into long-term debt to pay for it, than to lease the land on a short-term basis. However, those farmers who are just starting out or who are so small that financing is not possible are forced to enter into short-term leases because they offer affordability. Short-term leases are not necessarily optimal because they can limit a farmer’s use of and access to the land, which does not afford the same level of discretion in farming and business decisions as full ownership. In addition, the term of the tenure is for such a short period that the farmer often does not have much, if any, security in his or her investments beyond the immediate few years. This lack of long-term security hinders farmers’ ability to build equity in their land, or their businesses. Additionally, the short time frame of these agreements can create disincentives to protecting the environmental integrity of the land, as the prospective returns are based in the immediate use of the land, not the long-term conservation of its wildlife, habitat, and resources.

The two dominant models of United States land tenure are by nature limited, and create a web of problems for three distinct classes: for the farmer, for rural communities, and for the general public. From a farmer’s perspective, the loss of arable lands to urbanization and environmental degradation, combined with rising property values, has made access to suitable agricultural property very difficult. Full ownership allows owners of previously productive lands to sell at unrestricted market values that permit development and estate interests to out-price those of agriculture, leading to the conversion of farmland away from its productive use. In addition to limiting agricultural access, the rise in prices for farmland introduces the issue of continuing affordability.

230. FARMLASTS PROJECT, supra note 215, at 6 (stating that since 1950 the tenure type of part-owner-operator has become “dominant,” and as of 2002, sixty percent of farms with annual sales over $25,000 leased some or all of their land).
231. EQUITY TRUST, INC., supra note 213, at 2.
232. Id.
233. Margaret Rosso Grossman, Leasehold Interests and the Separation of Ownership and Control in U.S. Farmland, in PROPERTY AND VALUES, supra note 214, at 119, 144; see also HIGBY ET AL., supra note 218, at 12 (discussing how security of tenure is essential to good stewardship). See generally FARMLASTS PROJECT, supra note 215, at 14 (discussing how long-term leases promote land stewardship).
234. EQUITY TRUST, INC., supra note 213, at 1–2.
235. See generally FARMLASTS PROJECT, supra note 215, at 14 (discussing how any tenure should have affordability).
Statistics Service reported a twenty-three percent increase in per acre value of farms nationally, between 1997 and 2002. If the prices of the nation’s agricultural lands are not kept in a range at which it is profitable to farm them, then arable land will not be affordable for farmers, and the general public will not have access to nutritious food grown locally by small-scale producers. Furthermore, two commonly cited problems of short-term leases are that due to the lack of security in lease agreements there is no opportunity for farmers to build equity over the life of their businesses, and because of this short-term vision there is no incentive to use the land in a way that employs conservation values or maintains the public good that is derived from the land. In addition, farmland conversion is often followed by the loss of many farm-related rural businesses and, as the agriculture infrastructure that maintained the local economy is displaced, so is the community that surrounded it.

III. LAND TENURE OPTIONS TO PROMOTE INNOVATION AND INVESTMENT IN FARMING

Surely, short-term tenure over land is not a preferable arrangement for farmers or the public. However, there is a middle ground between short-term leases and full ownership that is being ignored by the current models. It seems that policymakers and farmers alike continue to favor the idea of full ownership over short-term tenure because they do not see any other way to assure the control and rights provided by long-term tenure. The control and rights derived from land tenure that are essential to the proper stewardship of land are identified by the FarmLASTS Project as the use, access, affordability, and security of farmland. If an alternative arrangement is able to provide these aspects of tenure to farmers on a long-term basis, then that arrangement should provide for their needs just as well as full ownership. Farmers, communities, and federal agencies all need to consider ownership alternatives, which can maintain continued stewardship without compromising these critical elements of long-term tenure.

236. Id. at 6.
237. EQUITY TRUST, INC., supra note 213, at 2–3.
238. See generally FARMLASTS PROJECT, supra note 215, at 14 (discussing how long-term leases promote land stewardship). See also HIGBY ET AL., supra note 218, at 12 (discussing how security of tenure is essential to good stewardship).
239. FARMLASTS PROJECT, supra note 215, at 6 (stating that, “when 235,000 farms failed during the U.S.’s mid-1980s farm crisis, 60,000 other rural business also failed”).
240. Id. at 14.
A broader vision of the bundle of rights and responsibilities associated with agricultural land tenure incorporates a stewardship ethic, which creates a role for both a farmer and a public institution as stewards of the long-term interests in productive and healthy farmland.\textsuperscript{242} Using such a framework as a lens, it is possible to see that there are certain rights and responsibilities in the bundle that are appropriately divested to a farmer, while there are other interests for which the public institution more appropriately bears the stewardship role.\textsuperscript{243} Two such alternative models of tenure are outlined below, but are not exclusive to the other possibilities that exist.

One option is to expand upon the current land trust model, in which a current owner or the prospective buyer initiates a process to protect land in its current state. Traditionally, a landowner will give a land trust the development rights on the property, and the trust holds those rights in perpetuity. This has two beneficial effects. The first benefit is that giving the land trust development rights allows the land trust to protect that land from ever being developed. The second benefit is that it keeps the property affordable because the market value of development is removed from the property’s purchase price. The problem is that when used as a mechanism to keep farmlands affordable and productive, these basic conservation easements are not sufficient; although they may conserve the physical character of the land, they do not prohibit the sale of lands based on the estate value.\textsuperscript{244} Although estate purchasers do not have the intention of developing the land, the estate value of land outweighs the agricultural value in many cases. Thus, these purchasers have the same effect on farmland as development interests, by out-pricing farmers and thereby removing the capacity for food production. To avoid both of these concerns and to ensure enforcement of the conservation goals, some farms have developed agriculturally-restricted conservation easements. In addition to transferring the development rights to the land trust, such easements can require that: the land be actively farmed, any home on the property be occupied by the farmer-owner; the farmer-owner derive a specific level of income from the farm itself;\textsuperscript{245} and the farmer engage in specific production

\textsuperscript{242} See id. at 8–17 (describing “The Social Relations Model” that “reconceptualizes property as a social system composed of entitlements that shape the contours of social relationships”); see also David M. Abromowitz, \textit{An Essay on Community Land Trusts, in PROPERTY AND VALUES, supra} note 214, at 213, 227 (discussing “limited equity ownership” with regards to community land trust housing).


\textsuperscript{244} EQUITY TRUST, INC., supra note 213, at 4.

\textsuperscript{245} \textit{Id.}
methods, certification processes, or conservation measures.\(^ {246}\) However, the most important mechanism in these arrangements is that the holder of the easement is given a purchase option at the agriculturally-restricted market value. This requires that if the landowner decides to sell, the trust gets the right of first refusal on the property at such a price that it can buy the land and sell it back to another farmer at an affordable rate.\(^ {247}\)

Another tenure model that is being explored is a long-term ground lease,\(^ {248}\) in which a land trust or other stewardship institution purchases the fee simple interest in the land, and the farmer-owner buys all improvements on the property such as the farmhouse and barn. The landholding institution can then “lease the ground” back to the farmer based on a ninety-nine-year lease, which prohibits absentee ownership so that the land is kept in production by a farmer-owner and may cap the resale of the improvements by the farmer-lessee, in order to maintain the affordability of the farm housing for another farmer.\(^ {249}\) Furthermore, this type of leasehold is inheritable and renewable, so that it provides long-term multigenerational tenure as well as the security necessary to build equity through a farmer’s long-term investments.\(^ {250}\)

Experience with the use of the alternative models described above suggests that such approaches satisfy the farmers’ needs for long-term tenure\(^ {251}\) and also help to protect the public’s interest in the long-term health and productivity of agricultural lands by distributing the burdens of ownership among other members of the community.\(^ {252}\) However, in addition to creating alternatives to traditional land tenure models, it will be necessary to look at alternative business structures and financing mechanisms for farms. Issues of tenure, business structure, and financing are inextricably connected in agriculture, and the possibilities for farms can only fully be realized when examining all of the potential options together.

\(^{246}\) Id. at 11 (discussing the requirement of “organic” or “biodynamic” certification processes in Live Power Community Farm’s easement).

\(^{247}\) Id. at 11–12.

\(^{248}\) See id. at 15–18, 22–24 (providing examples of long-term ground leases at several farms). See generally HIGBY ET AL., supra note 218, at 6 (describing the important details of employing long-term ground leases).

\(^{249}\) HIGBY ET AL., supra note 218, at 66.

\(^{250}\) EQUITY TRUST, INC., supra note 213, at 16. See generally HIGBY ET AL., supra note 218, at 6 (describing the important details and common issues associated with long-term ground leases).


\(^{252}\) Abromowitz, supra note 242, at 227 (discussing sharing rights in “limited equity ownership” with regard to CLT housing). See generally EQUITY TRUST, INC., supra note 213, at 14–18 (discussing the wider community’s role of farm ownership).
Full ownership, debt financing, and sole proprietorships do work for some people, in some places, but do not work for all farming communities everywhere. Thus, one balanced policy approach would alternately utilize diversified ownership, equity financing,253 and innovative business structures like the limited liability corporation (LLC)254 and low-profit limited liability corporation (L3C).255 In conclusion, it is incumbent upon agricultural agencies, such as the USDA, Cooperative Extensions, financing institutions, policy and lawmakers, and farmers themselves, to consider how to incorporate these alternatives into both law and culture, since the current models of tenure have, in some cases, proven limited to meet the multifarious needs of the United States agricultural system today.

**LOCAL FOOD CURRENCY:**
**AN ECONOMIC TOOL FOR COMMUNITY HEALTH**

*Erik Phillips-Nania*

**INTRODUCTION**

Money will decide the fate of mankind.

—Jacques Rueff256

If money grew on trees, then people would plant more trees.

—Author

Humans’ primary physiological needs for survival are water, food, and shelter. The social and environmental health of communities depends on the

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food that we grow, cook, and eat. The United States industrial food system has a strong influence on Americans’ diets and four out of the top six causes of death in the country are diet-related.\textsuperscript{257} Not only is the United States’ industrial food system a major contributor to diet-related deaths and illnesses, but it also significantly contributes to dependence on fossil fuels,\textsuperscript{258} climate change,\textsuperscript{259} environmental degradation and water pollution,\textsuperscript{260} and international disputes.\textsuperscript{261} The solution is for people to produce, prepare, and consume sustainably grown local food because this directly contributes to not just their own health, but also to the health of their community and the world’s interconnected biotic communities.\textsuperscript{262}

Like Colony Collapse Disorder (CCD), where millions of bee colonies “mysteriously” die in the fields each year,\textsuperscript{263} the idea of the “Agricultural Collapse Disorder” I propose describes how our industrially produced food “mysteriously” kills millions of people each growing season through diet-related diseases,\textsuperscript{264} famine,\textsuperscript{265} water contamination,\textsuperscript{266} acute poisonings,\textsuperscript{267} and other harms.

\textsuperscript{257} Leading Causes of Death, CENTERS FOR DISEASE CONTROL & PREVENTION, http://www.cdc.gov/nchs/fastats/lcod.htm (last updated Dec. 31, 2009) [hereinafter Leading Causes] (reporting the primary causes of death in the United States, including four that are diet-related: (1) Heart Disease (616,067 deaths per year), (2) Cancer (562,875 deaths per year), (3) Strokes (135,952 deaths per year), and (6) Diabetes (71,382 deaths per year)).

\textsuperscript{258} Eubanks, A Rotten System, supra note 6, at 269–70 (citing DANIEL IMHOFF, FOOD FIGHT: THE CITIZEN’S GUIDE TO A FOOD AND FARM BILL 102 (2007)) (reporting that agriculture accounts for approximately twenty percent of United States fossil fuel usage, including cultivation, processing, and distribution); see also, Dale Allen Pfeiffer, Eating Fossil Fuels, ENERGY BULL. (Oct. 2, 2003), http://www.energybulletin.net/node/281 (citing David Pimentel & Mario Giampietro, Food, Land, Population and the U.S. Economy, CARRYING CAPACITY NETWORK (Nov. 21, 1994), http://www.dieoff.org/page55.htm (reporting that “400 gallons of oil equivalents are expended annually to feed each American”).


\textsuperscript{260} Eubanks, A Rotten System, supra note 6, at 251–273.


\textsuperscript{262} See Eubanks, A Rotten System, supra note 6, at 304–10 (discussing the benefits of subsidizing sustainable agricultural practices).


\textsuperscript{265} SHARON ASTYK & AARON NEWTON, A NATION OF FARMERS: DEFEATING THE FOOD CRISIS ON AMERICAN SOIL 43 (2009) (“In fact, most of the 24,000 people who die each day of hunger world-
and farmer suicides.\textsuperscript{268} Similar to how toxic pesticides are key among many synergistic factors killing the bees, the United States Dollar (USD) and the economic bottom line are key among many synergistic factors stifling our local agriculture.\textsuperscript{269} While more environmentally friendly practices such as integrated pest management (IPM) can help alleviate CCD,\textsuperscript{270} complementary local currencies can similarly help alleviate Agricultural Collapse Disorder.\textsuperscript{271}

A fundamental social problem is that in most communities there is a very large demand for healthy and sustainable food that is not being met.\textsuperscript{272} A large market failure exists because in many of these same communities there are unused labor, land, and physical resources (e.g., farm equipment and storage facilities) that can be employed to fill this unmet and fundamental need for sustainable food.\textsuperscript{273} The problem is that there is a lack of money in the local economy.\textsuperscript{274} By creating a local food-backed currency,
communities can meet the demand for local sustainable food, as well as the
demand for other local goods and services.275

A local currency is confined to a small geographic area (e.g., a
watershed or local political boundary) and it essentially formalizes a barter
system.276 Over 4000 communities in the world use some type of local
currency.277 Local currency does not replace the national currency, but it is a
parallel or complementary currency.278 Local currencies encourage
consumers to “buy local”—to increase consumption of locally produced
goods and services.279 Local currency also helps protect the community
from the national currency’s hyper-inflation or deflation, helps increase
employment and local investment, and helps decrease income disparity.280 A
local “food-backed” currency is a reserve currency that represents an
amount of food, written on the currency, which the person holding the
currency can exchange for food.281

Part I of this essay first explains how the USD, and the United States
financial system in general, is experiencing an economic crisis with
implications for agriculture comparable to, or worse than, the Great
Depression and the 1980s farm crisis. Part I then explains why local food
production and storage is important for emergency preparedness. Part II
describes a local food currency used in Willits, California and the major
legal issues involved in implementing a local currency. Part III proposes
how a community can implement a local food currency.

275. Id. at 14, 52–54; Arin Farrington, When the Money Isn’t Flowing: Invent Your Own
276. GRECO, supra note 273, at 87 (“The primary role of money is to transcend the barter
limitation by serving as an intermediary exchange medium.”).
6, 2009), http://www.worldwatch.org/node/5978.
278. GRECO, supra note 273, at 13–14.
279. MICHAEL H. SHUMAN, GOING LOCAL: CREATING SELF-RELIANT COMMUNITIES IN A
GLOBAL AGE 132–33 (2000) (A community currency is “a system to promote local purchasing.”
“Whenever citizens buy a good that is made locally they expand jobs, enlarge the tax base, and
strengthen the economy.”)
281. Bradford, supra note 271; see GRECO, supra note 273, at 132 (stating that commodities
that have “special importance for the local economy could be used as a standard of value for a local
currency. This could be a cord of wood, a bushel of corn, a bale of cotton, or some other commodity that
is widely traded in local commerce.”)
I. FOOD SECURITY AND EMERGENCY PREPAREDNESS

A. Economic Instability

The USD is a “fiat currency” because it is declared legal tender by the United States government, but it has no intrinsic value and it is not convertible to gold like it was prior to 1945. The USD’s value is derived from its ability to be exchanged for goods and services and used for tax payments. Experts have warned that the long-term stability of the USD should not be taken for granted.

By many accounts, the American economic system is becoming increasingly unstable. Among the factors contributing to this increased economic instability is a United States debt of over $14 trillion; the cost of the 2009 financial bailout through direct spending, loans, and aid guarantees, which was over $11.6 trillion; a widening income disparity, with the top one percent earning 21.8 percent of total income; an increasing emphasis on financial services, which represent twenty percent of GDP and forty-four percent of all United States corporate profits; ever-
increasing real unemployment, which is currently at 16.5 percent;\footnote{Bureau of Labor Statistics, Economic News Release: Table A-15: Alternative Measures of Labor Underutilization, U.S. Department of Labor, http://www.bls.gov/news.release/empsit.t15.htm (last modified Nov. 5, 2010) (stating that seasonally adjusted unemployment for June to July 2010 was 16.5%).} a recent decision by the United States Supreme Court, which declared that “corporate money in politics” is “undermining self-government;\footnote{Citizens United v. Fed. Election Comm’n, 130 S.Ct. 876, 979 (2010) (5-4 decision) (Stevens, J., dissenting).} and record-low confidence in United States financial and political institutions.\footnote{Dennis Jacobe, Americans’ Confidence in Banks Remains at Historical Low, Gallup (April 6, 2010), http://www.gallup.com/poll/127226/Americans-Confidence-Banks-Historic-Historic-Low.aspx.} The current economic crisis has important and severe implications for industrial agriculture.\footnote{Financial Crash Could Deepen Food Crisis, United Nations Food & Agric. Org. (Oct. 15, 2008), http://www.fao.org/newsroom/en/news/2008/1000937/; see also Astyk, supra note 265, at 7 (“The energy train, the money train and the food train were inextricably linked in a host of ways that were difficult to disentangle, and each crisis fed the other, until a near-inevitable crisis in the world economy is unfolding”).}

The Great Depression resulted in land foreclosures and the price of food crashing.\footnote{Daniel Imhoff, Food Fight: The Citizen’s Guide to a Food and Farm Bill 34 (2007); Angelo, Corn, Carbon, and Conservation, supra note 5, at 621; Eubanks, A Rotten System, supra note 6, at 218–19; see also Astyk, supra note 265, at 44 (“The systematic removal of more than a million farming families from their land during the Depression resulted in both a new class of the desperately poor and hungry and in the disruption of links between local regions and food supplies. In the absence of money and energy to transport food long distances to markets, people starved.”).} The 1980s’ economic crisis involved the use of complicated financial management tools, a surge in interest rates, and a forty-five percent drop in Farm Credit System loans.\footnote{David Harrington & Thomas A. Carlin, U.S. Dep’t of Agric., The U.S. Farm Sector: How Is It Weathering the 1980’s? (AIB-506) at iv, 4, 12 (1987), available at http://www.eric.ed.gov/PDFS/ED280998.pdf (according to this study, farm households earned only eighty percent of the national average in 1984; in 1973 they earned fifty percent more than the national average).} During that time, farmer incomes plunged, and 214,000 farms were lost.\footnote{Id. at 4.} Thus, industrial agriculture is in crisis when the economy is in crisis.\footnote{Id. at 4.} Economic growth in the production and consumption of goods and services (i.e., GDP) based on cheap fossil fuels surpasses the limits of ecosystems to provide resources and absorb human pollution, thus
compromising Earth’s ability to support civilization.\textsuperscript{298} Sustainable
economic growth should mean an improvement in local natural capital, in
large part, through sustainable agricultural practices.

\textit{B. Food Insecurity}

Social well-being is at risk when people’s basic physiological needs for
food and water are at risk.\textsuperscript{299} One current source of social risk is that food in
the United States is grown using approximately $28.8 billion in fossil fuels
per year.\textsuperscript{300} This energy supply is at risk of failure or interruption due to
transportation breakdowns,\textsuperscript{301} natural disasters, and war. Large-scale crop
failures\textsuperscript{302} and bioterrorism could also cut off a community’s food supply. If
these disastrous events were to occur, there would be less than a week’s
worth of food in most local grocery stores to meet the demand.\textsuperscript{303} The
likelihood of food shortages is significant,\textsuperscript{304} and individuals and
communities should prepare accordingly.

Community and personal food production and storage dramatically
improve emergency preparedness and food security.\textsuperscript{305} Experts recommend
that every household have an emergency evacuation kit, a three-month

\textsuperscript{298.} Jared Diamond, \textit{Collapse: How Societies Choose to Fail or Succeed} 441–42
(2005); Greco, \textit{supra} note 273, at 5 (“This debt imperative creates a growth imperative that is forcing
us to destroy the life-support systems of the planet.” (emphasis in original)); Heinberg, \textit{supra} note 284,
at 177–79 (stating that post-industrial agriculture will be able to support “as many people as were
supported before agriculture was industrialized . . . [which is] somewhat fewer than 2 billion people,”
and that reduction “will probably come about as a result of famines, plagues, and wars”).

\textsuperscript{299.} See Christian Nellmann et al., U.N. Envtl. Program, \textit{The Environmental Food
Crisis: The Environment’s Role in Averting Future Food Crises} 6 (2009), \textit{available at}
http://www.grida.no/_res/site/file/publications/FoodCrisis_lores.pdf (evaluating the economic and
environmental causes of food crises).

\textsuperscript{300.} Randy Schnepf, \textit{Cong. Research Serv., Energy Use in Agriculture: Background
and Issues} (RL32677) \textit{at} 8 (2004), \textit{available at}
http://www.nationalaglawcenter.org/assets/crs/RL32677.pdf; Pfeiffer, \textit{supra} note 258, at 3.

\textsuperscript{301.} See Heinberg, \textit{supra} note 284, at 174–75 (stating reduced transportation, due to more
expensive fossil fuels, will disrupt the distribution of goods and “we will see an inevitable return to local
production for local consumption . . . . Unfortunately, the rebuilding of local production infrastructures
will be problematic with less energy available.”).

\textsuperscript{302.} See Reuters, \textit{Wheat Hits 23-Month High after Russia Bans Grain Exports}, N.Y.
breaking heat waves and drought, Russia will export significantly less than the previous year’s export of
“18.3 million metric tons of wheat, a total only exceeded by the United States and the European
Union”).

\textsuperscript{303.} Jessica Gorman, \textit{The Short and Long of the Food Transport Story}, Sci. News,
http://scienencenews.org/view/generic/id/3319/title/Food_for_Thought___The_Short_and_Long_of_the_Fo
od_Transport_Story (last visited Jan. 29, 2011).

\textsuperscript{304.} Nellmann, \textit{supra} note 299, at 6.

\textsuperscript{305.} Bradford, \textit{supra} note 271.
supply of stored food, and access to water. The money we use should communicate and facilitate this security imperative.

II. BACKGROUND OF LOCAL CURRENCIES

...for ye pay tithe of mint and dill and cumin, and have omitted the weightier matters of the law ...

—Matthew 23:23 (King James)

The history of local currency in the pre-industrial era began with businesses paying employees or encouraging customer loyalty with notes similar to today’s IOUs and gift certificates. Complementary currencies were mostly created in response to a national economic crisis: the Greenbacks were created during the American Civil War; the British Bradbury “Treasury Notes” and the German Kriegsgeld were created during the First World War; and the Caslow Recovery Certificates, along with 300 others, were created during the Great Depression.

A. An Example: Mendo Food Futures

The Willits Action Group, a nonprofit in Mendocino County, California, has successfully implemented a local food-backed currency.


307. See MATTHEW BIGGS ET AL., VEGETABLES, HERBS & FRUIT, AN ILLUSTRATED ENCYCLOPEDIA 214 (2002) (stating that the Bible suggests “herbs were of sufficient value to be used as tax payment”).

308. GRECO, supra note 273, at 57–68 (discussing the brief history of community currencies and private exchange systems, stating that “[s]erious human needs went unmet—until people began to organize”); Block, supra note 277, at 1–2. But see SHUMAN, supra note 279, at 133 (“The earliest colonial settlers used corn as a medium of exchange in Massachusetts and wampum with Native Americans.”).

309. GRECO, supra note 273, at 58 (“Common scrip types were certificates of indebtedness, tax anticipation warrants, payroll warrants, trade scrip, clearinghouse certificates, credit vouchers, moratorium certificates, and merchandise bonds. All these were intended to supplement the supply of scarce official money and to give people a means of paying for the goods and services they needed.” (emphasis in original)).

310. SHUMAN, supra note 279, at 133.

311. MENDO FUTURES, http://mendofutures.org/ (last visited Jan. 29, 2011); see also, Interview by Jason Bradford with Cyndee Logan, Mendo Food Futures at 1:05, Reality Report: Household and Community Food Security, ENERGY BULL. (Mar. 9, 2009), available at
The “Mendo Food Futures” currency was created with a two year grant from the CA Endowment to expand the local food system. In particular, the Willits Action Group seeks to encourage the establishment of more farms, a community kitchen, a granary, and the “Mendo Food Futures” currency.

The Willits Action Group sold 600 Mendo Food Futures at ten dollars each after storing 8000 pounds of grains and dry beans from local organic farms within 150 miles. Each note is exchanged for eleven pounds of brown or white rice, or pinto beans, or seventeen pounds of triticale. People redeem their Mendo Credits for food at the farmers’ market or at an office. Importantly, delivery is cheap, with empty trucks picking up the food on return trips, and storage is free at a warehouse. The program’s next step is to get a wider diversity of commodities, establish a local brand for value-added products, and build silos for storage.

B. Legalities of Local Currencies

The United States Constitution prohibits private coinage and counterfeiting. The clear intention is to standardize coinage.
Nevertheless, no Constitutional barrier exists to the issuance of local paper currency by organizations or municipalities.\textsuperscript{323} Several federal laws apply to establishing a local currency. Barter exchanges are subject to IRS information reporting requirements,\textsuperscript{324} and the 1933 Securities Act applies if the seller seeks to raise money for a business or to finance investments.\textsuperscript{325}

“State codes may affect the circulation and use of alternative currencies.”\textsuperscript{326} At least thirteen states require employers to pay their workers in United States currency only.\textsuperscript{327} Only Vermont specifically authorizes the formation of a corporation for the sole purpose of issuing local currency.\textsuperscript{328} In addition, Vermont prohibits the counterfeiting of local currency.\textsuperscript{329}

III. LOCAL FOOD-BACKED CURRENCIES AS THE ANSWER

Food currencies can be a powerful tool to facilitate and measure a community’s food security and economic health.\textsuperscript{330} First, the local currency

\textsuperscript{323} 18 U.S.C. §§ 486, 491 (stating that federal law prohibits local currency with denominations of less than a dollar); Briscoe v. Bank of Ky., 36 U.S. 257, 347 (1837) (“The Constitution . . . does not prohibit private persons, or private partnerships, or private corporations . . . from issuing bills of credit.”); GRECO, supra note 273, at 68 (“[T]here is no current law that would prevent scrip, community currencies, and private exchange systems from being implemented in the United States.”).

\textsuperscript{324} LEWIS SOLOMON, RETHINKING OUR CENTRALIZED MONETARY SYSTEM: THE CASE FOR A SYSTEM OF LOCAL CURRENCIES 118–20 (1996) (explaining that a “barter exchange,” is any organization of members who provide property or services and who trade or barter such property or services directly or through the entity). Tax Forms 1096 and 1099-B require information with respect to bartering, including the name and address of each member providing property or services, the property or services provided, the amount received for such property or services, and the date on which the exchange occurred. Id. See also GRECO, supra note 273, at 88.

\textsuperscript{325} See Reves v. Ernst & Young, 494 U.S. 56 (1990) (establishing the definitive approach in determining the federal securities law of notes). A local currency organization should consider the Small Corporate Offering Registration Form (SCOR), known as Form U-7, which is available in over forty-five states, with respect to Rule 504 of the SEC exemption for “small” securities under the 1933 Securities Act, Q & A: Small Business and the SEC, U.S. SEC. & EXCHANGE COMMISSION, http://www.sec.gov/info/smallbus/qasbsec.htm (last visited Nov. 5, 2010). Section 77c(a)(3) of the 1933 Securities Act lists several “exempted securities,” including those with maturities of less than nine months. 15 U.S.C. § 77c(a)(3) (2006)

\textsuperscript{326} SOLOMON, supra note 324, at 104–05, 127 (noting that Virginia and Arkansas are the only states with laws that restrain a system of paper scrip).

\textsuperscript{327} Id. at 104.

\textsuperscript{328} Id. at 105.

\textsuperscript{329} Id.

\textsuperscript{330} GRECO, supra note 273, at 14–17, 18–21, 57–70 (“[W]e can] start creating structures that are more consistent with our highest values, dreams, and visions . . . [M]oney is a]mong the primary obstacles to the improvement of the human condition.”).
increases overall economic activity.\textsuperscript{331} For example, if Vermont purchased ten percent more of its food directly from farmers, up from 1.2% today, it would add more than $100 million to the Vermont economy and over 3600 jobs.\textsuperscript{332} Even if the nation’s economic recession worsened, a local currency would help maintain money availability.\textsuperscript{333} Furthermore, the asset value of food currency remains stable over a significant time period because the exchange rate is locked for specific quantities of food for one year from the date of issue.\textsuperscript{334}

Second, the local currency would enable the utilization of productive resources, especially unemployed labor.\textsuperscript{335} The amount of people cultivating food should determine food security.\textsuperscript{336} As of 2000, less than two percent of the United States labor force worked full-time on farms, down from forty-five percent in the early 1900s and ninety-five percent in the early 1800s.\textsuperscript{337} Local food-currency can help “radically alter our food system” so as to create agrarian ascendancy.\textsuperscript{338}

Third, the food currency would encourage the production and consumption of locally produced goods and services.\textsuperscript{339} Directly related to this is the local environmental benefit. Because the organization facilitating the food currency would be buying significant amounts of food from local producers, the organization can help facilitate agricultural best practices among the farmers, such as planting a diversity of crops, reducing synthetic

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\textsuperscript{331.} \textit{Id.} at 53 (stating that a local currency favors local producers and its “narrow range of circulation makes it more likely that the spender will be able to earn it back. Local currencies, thus, stimulate local production and employment”).

\textsuperscript{332.} \textsc{Ron Krupp}, \textit{Lifting the Yoke: Local Solutions to America’s Farm and Food Crisis} 205 (2009) (citing \textsc{Doug Hoffer & Ellen Kahler}, \textit{The Vermont Job Gap Study: The Leaky Bucket: An Analysis of Vermont’s Dependence on Imports} 6 (2000)).

\textsuperscript{333.} \textsc{Greco}, \textit{supra} note 256, at 52 (“Community currencies supplement the available supply of conventional money, which is kept artificially scarce and expensive (because interest is charged). The amount of community currency can be expanded as needed to enable whatever amount of trading the local economy requires.”).


\textsuperscript{335.} \textsc{Greco}, \textit{supra} note 256, at 52.

\textsuperscript{336.} \textit{See Astyk}, \textit{supra} note 265, at 38–40 (“[T]he lack of farmers is a crisis on the scale of economic inequity, climate change, and peak energy . . . . We believe our future may well hinge upon whether we are able to create new farmers . . . . [T]he number of farmers you have can determine the stability of governments and whether a population goes hungry.”).

\textsuperscript{337.} \textsc{Carolyn Demitri et al.}, \textsc{Econ. Research Serv., U.S. Dep’t of Agric.}, \textit{The 20\textsuperscript{th} Century Transformation of U.S. Agriculture and Farm Policy} (2005), \textit{available at} http://www.ers.usda.gov/publications/ELIB3/eb3.pdf; \textsc{Imhoff}, \textit{supra} note 294, at 33.

\textsuperscript{338.} \textit{See Astyk}, \textit{supra} note 265, at 10 (“[W]e need] 100 million new farmers and 200 million new cooks in the US, and more worldwide . . . . [W]e simply have no choice but to radically alter our food system, to end its dependency on fossil fuels and to bring food security to the table as a central issue of our times.”).

\textsuperscript{339.} \textsc{Greco}, \textit{supra} note 256, at 52.
fertilizers and pesticides, and using IPM.340 Furthermore, the localization of agriculture can help reduce dependence on fossil fuels because sustainable farming systems “use 30% to 70% less energy per unit of land than conventional systems.”341

Fourth, the local currency can be a great educational device to raise awareness about issues such as the ecological or energy footprint of the food.342 Additionally, distribution of information guides, as done with Mendo Food Futures, can help people determine what and how much food they should store and how to cook with seasonal foods.343 Food currencies improve emergency preparedness because people necessarily buy in bulk, eat, and restock their food stores.344

IV. AN IMPLEMENTATION STRATEGY

The specific actions a community organization can take to implement a food currency begin with a survey of interest, planning, and solicitation of funds. After these steps, a community organization can (1) design and print the currency, (2) find and buy the food from local farmers and store it, (3) sell the currency, and (4) distribute the food (or other commodities) in exchange for a return of the local currency.345

A cooperative, run for the benefit of the community, should facilitate implementation.346 Acceptance is a function of social capital, wide and deep support, commitment, and the competence of the currency issuer.347 Acceptance from the municipality, schools, landlords, and grocery stores, plus other private businesses like restaurants, carpenters, healers, beekeepers, and law firms can significantly increase success.348

340. See Eubanks, A Rotten System, supra note 6, at 295–310 (discussing the benefits of subsidizing sustainable agricultural practices).
341. Id. at 306.
342. Id. at 304–10; Greco, supra note 256, at 24 (stating that money is an “information system” and “our acceptance of money is based on its information content”)
343. GRECO, supra note 273, at 24.
345. Id.; Interview by Jason Bradford, supra note 311, at 1:30, 6:00–13:00; Greco, supra note 256, at 128–135, 197–212. See generally, PETER NORTH, LOCAL MONEY: HOW TO MAKE IT HAPPEN IN YOUR COMMUNITY (2010) (describing various alternative currencies and explaining how they may be implemented).
346. Compare GRECO, supra note 273, at 199 with Bradford, supra note 271 (“Local governments, regional business associations, community banks, and worker cooperatives are examples of the kinds of institutions who tend to successfully issue local currency.”).
347. GRECO, supra note 273, at 212.
348. Id. at 198. See also Block, supra note 277 (“Businesses must be convinced to accept the currency and know where they can, in turn, spend it.”).
Farming will soon be more local, occur at a smaller scale, use more human labor, and return to the center of people’s economic life.\(^{349}\) Unfortunately, communities cannot expect federal assistance with local sustainable agriculture or Farm Bill subsidies.\(^{350}\) Nor should communities depend on economic stability or cheap oil. Even without federal assistance, however, communities can catalyze local sustainable agriculture. One powerful way to do this is with the creation of local food currencies. Food currencies can help encourage people to buy in bulk, eat local, produce food, and become more aware of personal and community health and economic issues. A local food-backed currency is the manifestation of Thomas Jefferson’s ideal of an agrarian democracy.

A lack of creative leadership and community participation is the primary barrier to both agricultural reform and local currency implementation. It is necessary to have a shared community commitment to and vision of a decentralized, sustainable, and low fossil fuel energy system in order to address the numerous social and ecological problems associated with the United States’ current agricultural system.

**FARM TO SCHOOL PROGRAMS**

*Emily Parish*

**INTRODUCTION**

“Farm to School” programs are school-based programs that “connect[] schools (k-12) and local farms with the objectives of serving healthy meals in school cafeterias, improving student nutrition, providing agriculture, health and nutrition educational opportunities, and supporting local and regional farmers.”\(^{351}\) As the definition demonstrates, Farm to School programs vary broadly, with some focusing on all, some, or just one of the

\(^{349}\) Eubanks, *A Rotten System*, supra note 6, at 295-96.


\(^{351}\) National Farm to School Network, *FARM TO SCH.*, http://farmtoschool.org, (last visited Nov. 11, 2010).
different program components. The focus on different components is dependent upon many factors, including the priorities and issues of the particular school or school system, the local agricultural market, and the funding available to support these types of programs. The growing popularity of Farm to School programs is a direct response to concerns surrounding childhood obesity, children’s nutrition standards, and children’s increasing disconnection from the origins of their food.352

I. BACKGROUND

According to the United States Department of Agriculture (USDA), approximately sixty million children attend public elementary and secondary schools, and about half, or just over thirty million, receive free or reduced-price lunches through the National School Lunch Program (NSLP) administered by the federal government.353 The other half either pay full price for their lunches, buy lunches from vending machines, pay for lunch as part of private school tuition, or bring their lunches from home. The National School Lunch Act mandates that school meals “safeguard the health and well-being of the Nation’s children.”354 Participating schools must serve lunches that meet the applicable recommendations of the USDA’s most recent Dietary Guidelines for Americans.355 These guidelines include: eating a variety of foods; choosing a diet with plenty of grain products, vegetables, and fruits; choosing a diet moderate in sugars and salt; and choosing a diet with thirty percent or less calories from fat and less than ten percent from saturated fat.356 In addition, lunches must provide at least one-third of the daily Recommended Dietary Allowances for protein, iron, calcium, and vitamins A and C.357 The USDA suggests four menu plans that help guide local schools on setting their lunch menus.358

352. Id.
355. Id.
356. Id.
357. Id.
358. Id.
According to a USDA study completed for the 2004–2005 school year, only six to seven percent of schools meet all the nutritional standards as established through the NSLP.359 According to this same study, only forty-nine percent of school meals served met caloric standards, only thirty percent met saturated fat standards, and only twenty-one percent met total fat standards.360 These statistics show that school lunches that exceed recommended caloric and fat standards are serious contributors to the childhood obesity epidemic in our country.361 According to the Center for Disease Control, childhood obesity has more than tripled in the past thirty years with one in three children in the United States (ages two to nineteen) now classified as obese or overweight.362

II. FARM TO SCHOOL PROGRAM STRUCTURE

There is currently no significant national Farm to School program or guidelines. Farm to School can generally be characterized as a grassroots movement at the local level, either by state, county, school district, or individual school. According to farmstoschool.org, the United States’ Farm to School programs are supported by the National Farm and School Network, a group of regional lead agencies that guide programs in eight geographic regions of the country.363 These regional lead agencies are mostly non-profits supported through private foundations or academic institutions, and are responsible for providing technical support, research, expertise, and guidance to local schools or school districts on Farm to School programs.364 Typically, the local school or school district designs, implements, and runs the specific programs itself.365

Funding is one of the more difficult aspects of the Farm to School movement. As we all know, school budgets are extremely tight, which often limits the types of choices a school can make when developing lunch menus. Schools participating in the NSLP get cash subsidies and donated

360. Id.
361. Id.
363. FARM TO SCH., http://www.farmtoschool.org/ (last visited Nov. 11, 2010).
365. NATIONAL SCHOOL LUNCH PROGRAM, supra note 353.
commodities from USDA surplus agricultural stocks for each meal that they serve.\textsuperscript{366} Therefore, schools depending on the NSLP, which comprise a large majority of both public and private schools in the United States, are severely limited in their purchasing options for school lunches. Schools that want to create Farm to School programs must supplement their food budgets with private grants to both launch and run these programs. The success stories show that after getting through the initial start-up costs, some schools are able to fund the projects due to increased meal participation rates.\textsuperscript{367} Some schools even find that the costs become more manageable after their staff becomes accustomed to using and preparing meals using local, fresh food sources.\textsuperscript{368} For programs focused less on cafeteria programs and more on general nutritional education or school gardens, start-up costs are usually covered either through educational budgets, private grants, school fundraising, or some combination of these sources.\textsuperscript{369}

III. FEDERAL GOVERNMENT SUPPORT

USDA provides some support for local Farm to School programs, although its role appears quite limited by a lack of funding and other responsibilities. The USDA Farm to School Team is comprised of staff from both the Food and Nutrition Service and the Agricultural Marketing Service.\textsuperscript{370} According to USDA’s Farm to School Program web site, the team “was created to support local and regional food systems by facilitating alliances between schools and their local food producers.”\textsuperscript{371} The Team focuses on several goals including: assisting schools in accessing local markets, enabling food producers to effectively service their local schools, and providing resources and technical assistance.\textsuperscript{372} This year, the Team will visit fifteen school districts around the country to “analyze and assess variables that support or deter Farm to School activities, both from the

\textsuperscript{366}. Id.
\textsuperscript{368}. JOSHI ET AL., supra note 367.
\textsuperscript{369}. See generally id. (discussing the success of eight farm to school programs).
\textsuperscript{371}. Id.
\textsuperscript{372}. Id.
school and farmer perspectives, and the effects the activities have had on the school and the community. In addition, the USDA offers various grants that do not specifically fund farm to school programs, but that could be adapted or manipulated by a creative program director to fund portions of the programs. For example, the USDA has grants for many related topics including health and nutrition, food equipment, and local farm grants.

IV. WHO BENEFITS FROM FARM TO SCHOOL PROGRAMS?

Above all, children benefit from Farm to School programs. These programs can provide healthy lunches to children and give them more exposure to fruits and vegetables. Farm to School programs can be an excellent tool for tackling childhood obesity from within the place where children spend the majority of their time during the day. The education programs provided through Farm to School programs will give children healthy-eating skills and knowledge that they can carry with them for the rest of their lives. Through the programs, which include farm tours, children have a wonderful opportunity to experience the outdoors and gain increased exposure to the land, thereby gaining a better understanding of their natural environment. Farmers and small to medium-size farms can also benefit significantly from these programs. These programs have the potential to open new markets that would provide additional support to family farms. According to farmtoschool.org, these programs can open a $12 billion market which has been traditionally closed to small farmers. This is also a way to provide greater connectivity between farmers and community. Farm to School programs can also benefit local communities by supporting local economies and fostering relationships between parents, farmers, and schools.

373. Id.
375. Id.
Currently, forty-five states have at least one operational Farm to School program. This includes over 2200 programs, involving 8900 schools in 2100 school districts. According to the United States Census Bureau’s 2002 Census of Government, there are 13,506 school districts in the country, and Farm to School programs exist in approximately fifteen percent of them.

As mentioned above, programs vary broadly by school or school district. Some programs address multiple components like cafeteria nutrition or school gardens, while some choose to focus on just one area. For example, the New York City school district focused their cafeteria program on just one item—local apples, the Riverside Unified School District in California focused on salad bar alternatives to hot lunches, and one Chicago school district designed their program around an eight-week curriculum focused solely on nutrition education in the classroom.

In the Riverside Unified School District in southern California, one elementary school launched a Farm to School program in 2005. The program focused on providing a salad bar stocked with locally grown lettuces, vegetables, and fruits. The California Endowment, in partnership with the Center for Food and Justice provided funding to start the program. This salad bar program has since grown to twenty-six elementary schools in the district. Based on surveys completed by the National Farm and School Network, children who choose the salad bar over hot lunch get 2.36 servings of fruits and vegetables opposed to the 1.49 servings they would get through hot lunch. The survey also reported that within one year of starting the program, the two local farmers who provided the fresh produce to the schools were averaging $1700 more per month in direct income.

Another successful program is Illinois’ Fresh from the Farm (FFF) program, implemented in select schools in the Chicago area, and focusing
mainly on lower-income areas of the district. Seven Generations Ahead (SGA), a local non-profit focused on health and nutrition issues in the Chicago area, runs the FFF program. After trying to launch a pilot project to bring fresh food into the cafeteria, SGA realized that the barriers were too numerous to overcome in many of the schools. For example, they had difficulty finding farmers willing to deliver to the schools and most schools did not have kitchens where fresh food could be prepared. As a result of this pilot project, SGA designed the FFF program to focus mostly on educating both students and parents. The program is comprised of several elements including an eight-week in-class curriculum focused on health and nutrition, parent-child healthy eating night workshops and newsletters, and providing produce baskets that can be purchased by parents who want to cook healthy food at home.

VI. LEGISLATIVE HISTORY

Over the last sixty years, there have been significant pieces of legislation that impact school lunch programs in the United States, some of which have an impact on the current and future success of the Farm to School movement. In 1946, Congress passed the National School Lunch Act (NSLA) with the purpose of providing a market for agricultural production and to improve the health and wellbeing of the nation’s youth. The 1966 Child Nutrition Act expanded the National School Lunch Program by establishing a school breakfast program, extending the Special Milk Program, and providing federal assistance towards non-food purchases for equipment. Significant legislation impacting Farm to School programs did not pass again until the 2002 Farm Bill, which authorized the Fresh Fruit and Vegetable Pilot (FFVP) in four states. Congress designed this pilot program to determine best practices for increasing fruit and vegetable consumption in schools, and expanded the pilot in both 2006 and 2008. It now includes all fifty states with $9.9 million allocated to the program. In 2004, the Child Nutrition and WIC Reauthorization Act was the first piece of legislation to specifically mention

384. Id. at 10.
385. Id.
387. Id.
388. Id.
389. Id.
390. Id. at 2.
school access to local food.\textsuperscript{391} Although no funding was provided in this Act (nor has been allocated since the act passed in 2004), the act amended the NSLA to encourage improved access to local foods in schools.\textsuperscript{392} Additionally, the Act required schools that participate in the NSLP to establish a local wellness policy for the 2006–2007 school year, including setting goals for nutrition education and physical activity.\textsuperscript{393}

The 2008 Farm Bill includes several key items that effect Farm to School programs. First, it amended the NSLA to allow schools that receive funding through the Child Nutrition Program to apply geographic preferences when procuring unprocessed foods.\textsuperscript{394} The bill also discusses a farm to cafeteria pilot program and clarifies that it should promote healthy food education, gives priority to projects that other schools can replicate, and authorizes hands-on gardening programs in high-poverty schools in up to five states.\textsuperscript{395} Unfortunately, the bill retains its minimum $50 million annual allocation for the purchase of fresh foods and vegetables for use in schools instead of increasing the allocation to enable schools to achieve these goals.\textsuperscript{396}

In March of 2010, Senator Patrick Leahy of Vermont and seventeen co-sponsors introduced S.3123: The Growing Farm to Schools Program Act.\textsuperscript{397} (There was a similar bill in the House—H. 4710\textsuperscript{398}). If passed, this act would have provided $50 million in mandatory funding to grow Farm to School programs nationwide.\textsuperscript{399} In addition, the act would have created a grant program for local schools to help establish or grow Farm to School programs.\textsuperscript{400} The program would have required local in-kind or cash matches to any grant funds received.\textsuperscript{401} The bill was referred to the Senate Committee on Agriculture, Nutrition and Forestry where no further action was taken before the end of the 111\textsuperscript{th} session.\textsuperscript{402}

\begin{itemize}
\item \textsuperscript{391} Id. at 1.
\item \textsuperscript{392} Id.
\item \textsuperscript{393} Id.
\item \textsuperscript{394} Id. at 2.
\item \textsuperscript{395} Id.
\item \textsuperscript{396} Id.
\item \textsuperscript{397} Growing Farm to School Programs Act of 2010, S. 3123, 111th Cong. (2d Sess. 2010).
\item \textsuperscript{398} Farm to School Improvements Act of 2010, H.R. 4710, 111th Cong. (2d Sess. 2010).
\item \textsuperscript{399} Growing Farm to School Programs Act of 2010, S. 3123, 111th Cong. § 2(g)(8)(A) (2d Sess. 2010).
\item \textsuperscript{400} Id. § 2(g)(3)(A)(vii).
\item \textsuperscript{401} Id. § 2(g)(4)(B).
\end{itemize}
In addition to federal legislation, there is currently state legislation relating to Farm to School programs pending in twenty-seven states.403

VII. BARRIERS TO A SUCCESSFUL FARM TO SCHOOL MOVEMENT

Although Farm to School programs are seeing success and gaining momentum around the country, there are still several barriers to these programs succeeding on a scale that would have a significant impact on the nutrition of school lunches and the health of our nation’s children. First, these programs place the majority of responsibility for implementation on local schools and school districts and often require significant investments of time and resources. Implementation of such programs requires schools to create a program vision, seek and secure funding opportunities, encourage buy-in from parents and faculty, and launch and sustain the program. This first barrier touches on another significant barrier—funding. As discussed above, most successful programs have looked to private foundations or philanthropic corporations to supplement their school budgets to support the programs. The process of seeking out funding and applying for grants is time-consuming, is not always fruitful, and can be severely limited by a lack of access to funding sources in a specific geographic area (like some rural communities). There is also a lack of significant sources of dedicated government funding that would be necessary to allow these programs to achieve success in all parts of the country.

The third barrier is largely cultural; if children have grown up eating processed foods that are high in fat and sugar and taste good to them, it is extremely challenging to break them of these habits, especially if their parents are not supportive. These unhealthy eating habits can be a significant problem when highly processed hot lunch options are still prevalent in school cafeterias, when schools offer vending machines with snack foods and drinks for purchase, and when children have the option to bring lunches from home. Some Farm to School programs are trying to address these concerns through in-classroom education, by creating fun and creative ways to expose kids to new and different foods, and through parental education.404 For example, Cornell University has created a website called Smarter Lunchrooms, which provides educators and parents with

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404. See National Farm to School Network, supra note 351 (explaining how Farm to School not only promotes fresh salad bars and local foods in the cafeteria but also includes activities such as composting, planting school gardens, farm tours, and cooking demonstrations).
creative tools to help children consider eating healthier options.\textsuperscript{405} One of the many strategies they suggest is changing the names of foods to make them more attractive to children—so instead of “peas,” name them “power peas.”\textsuperscript{406}

CONCLUSION

Farm to School is a growing movement throughout the United States that has been largely of grassroots origin to date because of limited federal support. This movement has been successful thus far because of the significant efforts of creative educators, ingenious farmers, and supportive non-profits and foundations. The movement is gaining more public attention thanks to reality shows like Jamie Oliver’s \textit{Food Revolution}, but it still has a long way to go before it becomes a mass movement affecting all the schools in the entire country. Government support, like that proposed through S. 3123 would go a long way toward helping to increase the pace and impact of these programs, but full success will always require the willingness, creativity, and commitment of schools to make a significant difference in the health of their students.

FARMERS’ MARKETS TAKE FOOD STAMPS: MAKING AN IMPACT ON THE AMERICAN DIET?

\textit{Jennifer L. Perez}\textsuperscript{*}

BACKGROUND

The Food Stamp Program (FSP), administered by the United States Department of Agriculture (USDA), has served one in eleven Americans or more than twenty-eight million people as of December 2009.\textsuperscript{407} This

\textsuperscript{406} Id.
\textsuperscript{407} Id.

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staggering number includes one in four children. Food stamps have been in existence in some form since the early 1930s. Congress developed the pilot program for purchasing food coupons during the Great Depression era as a way to rid the nation of unmarketable food surpluses and assist with widespread unemployment. Several decades later, Congress voted the Food Stamp Act of 1964 into law in conjunction with the 1965 Food and Agriculture Act, which would eventually become part of what is known as the Farm Bill.

Under Title IV of the 2008 Farm Bill, Congress officially re-named the federal Food Stamp Program as the Supplemental Nutrition Assistance Program (SNAP). Changing the well-known program name was an effort to emphasize a national focus on the definition of nutrition and encourage SNAP participants to consume healthier foods. One of the features of Title IV is a program where farmers’ markets throughout the nation can accept SNAP. With the growing trend toward eating locally grown food, this program makes it possible for people in our country’s lower economic tiers to access fresh fruit, vegetable, and meat products directly from their local farmers.

I. FOOD STAMPS AND FARMERS’ MARKETS

Under the SNAP farmers’ market program, each farmer has to fill out an application to become eligible to accept SNAP as payment. Farmers’ markets claiming more than $100 in SNAP sales are provided a machine on-site that accepts the electronic benefit (EBT) cards on which SNAP supplements are distributed. The county in which the farmers’ market is located creates a system providing tokens or coupons that consumers can

409. SNAP, supra note 407.
410. Id.
411. Id.
413. SNAP, supra note 407.
exchange for produce with each farmer. The farmers exchange the coupons or tokens for a reimbursement. The farmers or entity that owns the farmers’ market is responsible for advertising that they accept SNAP benefits and for attracting SNAP participants to their stands.

According to the USDA, SNAP utilization at several farmers’ markets has been successful thus far. The statistics on how many consumers have used food stamps at the markets range from twenty to one hundred per farmers’ market in a selling season (usually about four or five months in length) to over 1000 at larger farmers’ markets. In addition, statistics from 2006 through 2008 show a steady increase in participation, likely providing some justification for the nearly twenty million dollars that went toward Food and Nutrition Programs under Title IV of the 2008 Farm Bill. In fact, some SNAP participants who use their benefits at farmers’ markets receive bonus incentives from these funds. A bonus dollar matches each dollar of SNAP funds spent at a farmers’ market. Participants can only use the bonus at the farmer’s market, effectively doubling the benefit for the participant and the farmer.

As this program is fairly new, there are no readily available statistics on the total number of farmers who participate or what percentage of the farmer’s income has been supplemented by accepting SNAP. There are also no statistics on SNAP consumers’ rationale for participation in the program or lack thereof. We can, however, theoretically explore the impact of this program on the SNAP consumers’ diets.


420. See id. (discussing, through several success stories listed, that farmers’ markets currently have customers using EBT, and the number of customers depends on the size of the farmers’ market).


423. Id.

424. Id.
II. BENEFITS AND CHALLENGES

Farmers’ markets accepting SNAP benefits could have a positive impact in many ways. Government officials, in writing the 2008 Farm Bill, created dialogue around the nutritional intake of some of the poorest people in our nation and ways to encourage healthful eating. Poor nutritional health can lead to numerous diseases such as diabetes and obesity. Both of these are rampant problems in the United States at large and specifically among the minority groups that receive a significant percentage of SNAP benefits. 425 By increasing the fruits, vegetables, and fresh proteins eaten by individuals receiving SNAP, the result should be a positive impact on these health problems. In addition, individuals throughout our nation have lost touch with their local farmer and many are probably not aware that they are within close proximity to a farm or farmers’ market. With the growing trend toward supporting locally grown foods, this program has the potential to connect a significant number of individuals to their local farms. Another benefit is financial support for the local farmer and creation of a new stream of income that can assist them in sustaining production and keeping their farms.

There are also potential systemic problems with the Farmers’ Market Food Stamp Program. In nearly fifty years since its passage into law, fraud and problems with reimbursement have been recurrent themes within the Food Stamp Program. 426 Although policing of these inherent issues has strengthened over the last several years, many individuals historically have circumvented buying only “eligible” foods specified by the USDA for SNAP benefits. It may be difficult for the SNAP program to determine what consumers have purchased and how they use those purchases.

One of the biggest issues is overcoming a mentality that health food is simply unaffordable. The authors of Can Low-Income Americans Afford to Eat a Healthy Diet? weigh the economics of healthy eating and state that the subjective mind-set of Americans regarding food cost increasingly complicates the analysis. 427 Moreover, SNAP benefits have barely kept up with inflation. The average family of four receives about $668 in benefits per month or roughly five dollars per day per person, a sum difficult to
budget with the increasing prices of food and the tough economic times.\textsuperscript{428} Better education on cost analysis and on the benefits of eating healthier may help SNAP consumers see food in a new light. The USDA does provide several free educational tools on nutrition and eating healthy while on a budget.\textsuperscript{429}

**CONCLUSION**

Many questions arise from a debate on the pros and cons of Farm Bill programs like the Farmers’ Market SNAP initiative. After generations of learned behavior around stretching a dollar by purchasing less expensive, more convenient foods, have we created a nation addicted to additives and chemicals such as high fructose corn syrup? Can a program like this really encourage people to stop and think about their nutrition and start traveling to and buying produce from their local farmers’ market? With many of the twenty-eight million people on food stamps being children, would it make a bigger impact to divert funding to our youngest generation, instilling in them a love of farms, fresh fruits, and vegetables over fast, processed food? Both consumers and legislatures are discussing interesting views on these questions. Ultimately the bottom line may be simply what Michael Pollen touts in *Farmer in Chief*, when he states, “[a]ll these initiatives have the virtue of advancing two objectives at once: supporting the health of at-risk Americans and the revival of local food economies.”\textsuperscript{430} Only time will tell if this proves to be true.


\textsuperscript{430} Pollan, *Farmer in Chief*, supra note 49.
TABLE OF CONTENTS

INTRODUCTION

Two pillars of Vermont’s economy—a agriculture and tourism—are inextricably linked, and the success of the first provides the foundation for the second. In addition to the picturesque ski-mountains and stunning fall foliage, visitors come to the Green Mountains for a chance to see pristine hill farms, bright red barns, and black-and-white cows. But the current state of farming in Vermont is not so rosy. While recent years have seen an upswing in new Community Supported Agriculture (CSA) projects and other small-scale, artisanal food production, the general trend over the past
half-century has been a stunning decline in the number of active farms and operational agricultural land throughout the state.\textsuperscript{1} Dairy farming, the primary agricultural land-use and the industry most responsible for keeping lands open, has been especially hard hit.\textsuperscript{2}

The decline of the agricultural economy is the result of myriad factors, some based on the farm, others from inside the state, and still others stemming from national causes. Difficulties surrounding succession and the increasing average age of farmers place doubt as to the viability of the next generation of farmers. Nationally fluctuating commodity prices,\textsuperscript{3} specifically for milk,\textsuperscript{4} have severely impaired the viability of the family dairy farm as Vermont’s rocky hill farms attempt to contend with mega-farms on the Midwest plains or the West Coast. Likewise, the pressures of increased debt and the lack of access to inexpensive capital have made the cost of agriculture, at times, prohibitively expensive.\textsuperscript{5} Challenges to farming have also come from within the state as development has oozed outside of traditional town centers and housing has begun to compete with Holsteins for prime land. It is this development pressure and the importance of protecting farmland as farmland that is the focus of this article.

As the number of active farms working the land dwindles, the state loses open pastures and productive cropland.\textsuperscript{6} Loss of farmland brings with

\begin{itemize}
\item[2.] Since 2006, the state has lost ten percent of its dairy farm operations and an additional twenty-seven farms have closed since the beginning of 2009, leaving the total number of dairy farms at 1062. Peter Hirschfeld, \textit{Economy Is Taking Its Toll on Vermont’s Farmers}, TIMES-ARGUS, Apr. 26, 2009, at A1.
\item[4.] While prices for milk per hundredweight have increased since a generational low in 2009, the economic realities of farming remain difficult. See Brian Gould, \textit{Milk Prices > All Milk Prices; Year on Year}, U. WIS.–MADISON, \textit{http://future.aae.wisc.edu/data/monthly_values/by_area/10?area=US&tab=prices&yoy=true} (last visited Jan. 28, 2011) (displaying substantial increase in milk price from 2009 to 2010); \textit{cf.} Hirschfeld, \textit{supra} note 2, at A1 (stating prices for milk per hundredweight in April 2009 were half of what they were in September 2008).
\item[6.] Vermont farms account for more than 1.2 million acres of land—roughly twenty percent of the state—and over half of that land is open cropland or pasture. \textit{See Data Sets: State Fact Sheets: Vermont, ECON. RES, SERVICE, U.S. DEPARTMENT AGRIC., http://www.crs.usda.gov/statefacts/VT.HTM} (last updated Dec. 16, 2010) (listing data from 2007 Census of Agriculture). The bulk of these lands are in dairy farming. \textit{Id.}
it aesthetic, environmental, economic, and emotional costs. The sweeping vistas of wooded hilltops and patchwork fields are being replaced with “toadstool” developments dotting the pastures, or scrub forest overtaking the open land. As more agricultural land is lost to subdivisions, important wildlife habitat disappears and prime soils are converted away from food production.

Vermont, however, is a creative state, one capable of pragmatic Yankee ingenuity and forward-looking innovation. Rather than be idle and bemoan the decline of the state’s rural character, Vermonters have established a number of formal and informal mechanisms for protecting farmland and promoting the value of agriculture. These various tools bring differing benefits and drawbacks to the table, but each has a goal of preserving this central piece of Vermont’s heritage and protecting its future. It remains to be seen whether these initiatives, coupled with the variety of other available farm-support programs, will be enough to preserve the state’s pastoral heritage and maintain this vital economic engine.

This article gives an overview of the most prevalent of these land-preservation tools and specifically analyzes how well some of them are working in Vermont. It is not a quantitative study that attempts to numerically value the success or failure of each program. Rather, it is a summary that provides some general understanding of the land-preservation schemes in play. By focusing on the interaction of these preservation mechanisms, the hope is to show some of the conflicts that can arise with and among these strategies. The first part of the article briefly discusses the importance of preserving farmland and examines how the land is a valuable state asset. The second part introduces the basic challenges facing farmers and the forces at work that necessitate preservation. The third part provides an overview of the tools that have been developed to help farmers face such pressures and offers a critique of each set of tools. The article concludes with the recognition that land-use tools are one piece of a broader farm protection puzzle. Though they may not be a cure-all, they certainly provide a necessary boost for struggling farmers.

7. Vermont is still the most “rural” state in the nation in terms of non-urban population; roughly thirty-three percent of Vermonters live in an urban area. See id. (estimating Vermont’s 2009 population at 621,760 of which 208,055 is categorized as “urban” and 413,705 as “rural”). That figure belies the fact that the number of medium- and large-scale farming operations are dwindling.
Agriculture is a central component of Vermont’s economy. As a direct contributor, agriculture only provides around one percent of the state’s gross domestic product each year. However, that nominal figure minimizes the much greater economic impact that the agricultural economy has in terms of jobs, value-added products, and the maintenance of a working landscape. The agricultural sector employs people in portions of the state that lack other viable job opportunities and provides for a range of support industries from veterinary services to implement mechanics to agricultural outreach workers. Some of the state’s largest—or at least better known—employers are also processors of Vermont agricultural products: Cabot Creamery and Ben & Jerry’s (Unilever). Adding the value of food processors “more than doubles the estimate of agriculture’s economic impact on the Vermont economy.”

Putting the direct economic impact to one side, the working landscape of Vermont provides intangible benefits to citizens of the state. Many Vermonters have recognized the rural landscape as a crucial piece of what makes the state special and improves their quality of life. Well over ninety percent of respondents in a recent survey agreed with the statement, “I value the working landscape and its heritage.” Beyond these possibly sentimental reasons, the Vermont landscape is a central draw for the millions of tourists who flock to the state each year. As a vital factor in this facet of the state’s economy, maintenance of open vistas and hill-farm


9. Bolduc & Kessel, supra note 8. As used here and below, “working landscape” implies an active use of the natural resources of the state, both agricultural and silvicultural.

10. Id.

11. Id.


pastures is as important to the state’s future as sizable winter snowfall. The
rural character also lends itself to the Vermont “brand,” an image that is key
to the growth and success of many of the state’s newest employers. 14

Still, the amount of land in active agricultural use is shrinking in the
state each year, decreasing by more than sixteen percent over the past
twenty-five years. 15 Of this decrease, the majority of the land has been
reverting to forestland, but nearly fifteen percent of it has moved into the
“developed land” category. 16 “The rate and extension of land development
has exceeded [the rate] of population growth resulting in pressure that spills
over from urbanized areas into rural areas.” 17 Vermont dairy farms have
been hit especially hard: “In 1947 over 11,000 dairies blanketed the fields
and hills. That figure dropped to 2,370 in 1990, and by 2007 only 1,097
survive . . . .” 18 As sprawl continues to flow out from cities and town
centers and into surrounding farmland, the pressure to shift productive
agricultural lands into developed lands also increases.

This Vermont trend is reflected nationally as every year more and more
acres of agricultural land are removed from food production and
“developed” into another use. 19 Agricultural land provides a tempting target
for developers for multiple reasons. It is generally located closer to urban
boundaries and thus is readily available for conversion into commuter
communities. 20 The features that make it prime growing soil also encourage

14. See id. at 44–45 (noting growth of medium-sized employers in the state, “which all play an
important role in promoting the Vermont ‘brand’ and are at the forefront of the corporate social
responsibility movement” including Ben & Jerry’s (Unilever), King Arthur Flour, Burton Snowboards,
and Seventh Generation).

15. Id. at 34.

16. Id. at 34 n.6 (calculating from the National Resources Inventory of the Natural Resources
Conservation Service of the United States Department of Agriculture). These are based on a sampling
procedure with margins of error. Ray Godfrey, of the Colchester office of the Natural Resources
Conservation Service, has been of great assistance in clarifying data and providing additional
interpretation. Margins of error are not reported here, but data for 2003 have higher margins of error
than previous years.

17. Id. at 35.

18. CFVT, supra note 12, at 56.

19. See Luther Tweeten, Food Security and Farmland Preservation, 3 DRAKE J. AGRIC. L. 237,
237 (1998) (discussing the high rate of decline of acres used for agriculture and the rapid increase of
lands used for urban development purposes nationwide); see also Farming on the Edge Report: What’s
Happening to Our Farmland?, AM. FARMLAND TRUST (2009), http://www.farmland.org/
resources/fote/default.asp (last visited Feb. 27, 2011) [hereinafter Farming on the Edge Report]
(“Between 2002 and 2007, 7,491,300 acres of rural land were converted to developed uses—an area
nearly the size of Maryland. This amounts to an average annual conversion rate of 1,498,200 acres.”).

20. Farming on the Edge Report: Domestic Food in the Path of Development, AM. FARMLAND
(showing eighty-six percent of U.S. fruits and vegetables, and sixty-three percent of our dairy products,
are produced in urban-influenced areas).
urbanization: “The topography of prime farmland lowers infrastructure costs for development and makes such land a tempting target for development.”21 Its generally level grade, good drainage, and open expanse simplify the transition from amber waves to asphalt cul-de-sacs.

An early survey on the subject of agricultural land preservation recognized five key values in preserving and protecting lands in active cultivation:

property taxes increase to pay for the increased cost of servicing scattered rural subdivisions;

the destruction of fragile lands and the pollution of air and water as farmlands are replaced by suburban developments;

a shift in the local economic base as agricultural jobs are replaced by manufacturing and service jobs;

the decline of the political power of agriculture as suburban votes supplant agricultural votes; and

the loss of the rural landscape as farmhouses and fields are bulldozed for shopping centers, highways and subdivisions.22

Protection of prime agricultural soils also prevents such lands from being removed from the food-production cycle and irreparably damaged through the building and maintenance of housing.23 Restoration of such lands can


22. WILLIAM TONER, ZONING TO PROTECT FARMING: A CITIZENS’ GUIDEBOOK 6 (1981); see also Sean F. Nolan & Cozata Solloway, Preserving Our Heritage: Tools to Cultivate Agricultural Preservation in New York State, 17 PACE L. REV. 591, 593–94 (1997) (citing AM. FARMLAND TRUST, AGRICULTURAL AND FARMLAND PROTECTION FOR NEW YORK 6 (1993) (discussing how agricultural lands provide a generous portion of property taxes, relative to the services they require; this portion is all the more extreme in light of the payment-to-services ratio of most suburban developments, which often replace active farms).

23. AM. FARMLAND TRUST, PLANNING AND ZONING FOR FARMLAND PROTECTION: A COMMUNITY BASED APPROACH 3, 19–21 (1987) [hereinafter PLANNING & ZONING]. Vermont has long valued “prime agricultural soils” and made their preservation a central criterion in permitting large-scale development. See VT. STAT. ANN. tit. 10, § 6086(a)(9)(B) (including as a criterion for granting a permit to develop or subdivide land characterized as “primary agricultural soils” the requirement that the activity “will not result in any reduction in the agricultural potential of the primary agricultural soils,” or, if it does, requiring the applicant to mitigate the impacts); see also infra part III.E (discussing the pros and cons of the Act 250 process).
involve costs far higher than the original value of the land, and it is precisely this land that we are losing the fastest.

The environmental and aesthetic benefits of preserving agricultural land are also myriad. As illustrated above,

Society has long recognized that agricultural land has value for the following environmental uses in addition to crop and livestock production: ecological services, such as water quality; habitat services, such as wildlife for species preservation, hunting, or bird watching; and amenity services, such as a bucolic scene of grazing livestock, quilted crop rotations, or contoured hills.

These additional values show that, beyond economic benefits, open lands and working landscapes have positive externalities for the surrounding landowners and the community at large.

II. PRESSURES FACING FARMERS

In a recent study examining the future of Vermont through the eyes of its citizens, one participant noted that “the farm and forest economy is in many ways Vermont’s best tool to prevent the loss of the land.” While this statement resonates with a desire to protect the working landscape, it also seems circular. The preservation of the land may rely on a robust agricultural economy, but the availability of suitable agricultural land is vital to sustaining these same sectors. With prime farmland under tremendous internal and external pressures, the tools that state and local governments have to promote and protect such lands for use as farmland become all the more important.

24. Tweeten, supra note 19, at 238 (citing S. Fred Singer, Comm. on Soil as a Res. in Relation to Surface Mining for Coal, Nat’l Research Council, Surface Mining: Soil, Coal, and Society, 10 ENVTL. CONSERVATION 182–83 (1983)) (“Costs of private back-filling and revegetation mandated by government to restore basic topography and productivity for agriculture in the late 1970s averaged over $18,000 per acre in Appalachia, $16,000 per acre in the Midwest, and $17,000 per acre in the West. These costs, over twenty times the value of land for agricultural production, imply huge environmental benefits from land.”).


26. Tweeten, supra note 19, at 238.

27. CFVT, supra note 12, at 59. Presumably, the participant was referring to “loss of the land” to development; see also Tweeten, supra note 19, at 238 (“Society has long recognized that agricultural land has value for . . . environmental uses in addition to crop and livestock production.”).
Broadly speaking, two main forces interact to lead to the conversion of agricultural lands into urban or “developed” lands. The first is expansion of development out from existing urban centers. As cities have decayed over the past half-century, the demand for good land within commuting distance of job centers has increased. Accordingly, the bulk of recent development has occurred at the urban fringe, where residential areas often meet agricultural land. Prime agricultural soils also have many of the features desired by developers: proximity to population centers, relatively level topography, and good drainage. Thus, the demand for good farmland that can be easily converted into residential development is often higher than the demand for the land in its current use.

This is the second challenge: the lack of demand for farmland as farmland. With the growth of large-scale farming and agribusiness following the “green revolution” and the proliferation of fossil-fuel-based fertilizers, smaller-scale farms, particularly those closer to population centers, have begun to lose viability. Technological advances and economies of scale have cut production and transportation costs and have forced many smaller farmers to grow big or get out. Along with the shrinking profit margins, these same lands also face pressure from the encroaching development. As residential development has drawn near, the value of the undeveloped farmlands has increased and with it, the local property taxes. Faced with shrinking profits and higher overhead expenses, many farmers simply have not been able to continue. These economic

28. A related concept is laid-out in Tweeten, supra note 19, at 242.
29. While the new urbanist movement suggests that a return to city centers is currently underway, since the early 1950s the general population flow has been outward from urban centers. See generally John D. Kasarda, Stephen J. Appold, Stuart H. Sweeney & Elaine Sieff, Central-City and Suburban Migration Patterns: Is a Turnaround on the Horizon?, 8 HOUSING POLICY DEBATE 307 (1997) (using census data to analyze metropolitan household migration patterns); see also Matt Sutkoski, Data Show Vermonters Moving Back Toward the City, BURLINGTON FREE PRESS, Feb. 20, 2011, at B1 (relying on 2010 U.S. census data to show increased growth in established urban centers and suggesting that land-use tools may be shifting population growth back to villages and towns).
31. Tweeten, supra note 19, at 241 (“The topography of prime farmland lowers infrastructure costs for development and makes such land a tempting target for development.”).
32. See generally DOUGLAS TOMPKINS ET AL., THE FATAL HARVEST READER: THE TRAGEDY OF INDUSTRIAL AGRICULTURE (Andrew Kimbrell ed., Island Press 2002) (collecting writings on industrial agriculture). Even in Vermont, which prides itself on small-scale operations, the number of dairy farms continues to shrink, while their size increases—currently the top 1.2% of dairy farms produces 28% of the total farm income for the state. Hirschfeld, supra note 2, at A1; Vt. Dairy Promotion Council, supra note 1; see CFVT, supra note 12, at 56 (pointing out that the number of smaller, non-dairy farms has increased in the state, but of these operations, 41% had an income of less than $2500 per year in 2002).
33. For an engaging illustration of the mounting pressures suburban development places on small farmers see TONER, supra note 22, at 7–8.
pressures, coupled with the increasing average age of farmers,\textsuperscript{34} have decreased the internal—or farmer-based—demand for farmland. Even for would-be farmers, the cost of entry into the marketplace has simply become too high.\textsuperscript{35} When looking to purchase a piece of prime farmland, a young farmer may have to compete economically with large-scale development interests.

III. OVERVIEW OF THE TOOLS

Given the multifaceted pressures facing farmers today, how can local or state governments best work to preserve farmland and keep farms successful? There are almost as many ideas as there are crops and soil types to protect. Each form of protection or incentive offers a different model, focusing on one or more of the pressures impacting local farmlands. One subset of tools attempts to protect farms by protecting farmland. These tools strive to (1) lower costs faced by farmers (e.g., developing local markets for products, decreasing farmland taxes, increasing land-based payments to farmers), (2) hinder or prohibit development pressures on certain lands (e.g., right-to-farm laws, environmental or aesthetic regulatory laws, agricultural protection zoning), or (3) expressly highlight and promote the value of active farmland in regional and local planning. Each of these various tools provides different benefits to farmers. While no single measure is a complete guarantee that farming will continue throughout the state, they do lessen the growing burden on farmers, enabling new individuals to enter the market and allowing others to continue working the land.

A. Informal Tools: Farmers’ Markets, CSAs, and Local Food Networks\textsuperscript{36}

One vital support for small- and medium-scale farms is direct marketing to consumers. Farmers’ Markets and CSAs can provide important revenue streams for farmers who might otherwise be unable to

\textsuperscript{34} See \textsc{Bolduc \& Kesel}, \textit{supra} note 8, at 71 (“In 2002, the average age of principal operators of Vermont farms was 54 years, up from 49 in 1978 . . . . This raises a question of whether there will be a sufficient number of younger Vermonters willing and able to maintain Vermont farms in the future.”). Such figures also suggest that fewer children are taking over family farms, especially in the face of mounting financial pressure and the lure of a more urban lifestyle.

\textsuperscript{35} \textsc{CFVT, supra} note 12, at 57.

\textsuperscript{36} While not land-protection tools, no discussion of farm preservation would be adequate without some mention of the growth and importance of direct market connections between farmers and consumers.
enter larger markets. The growing numbers of such initiatives show their increasing popularity. These avenues of direct-to-consumer contact, small though they may be, have been successful in increasing both agricultural production and agricultural profits in the state. As one recent Vermont study noted, “When products are grown and consumed locally, farms can emphasize the uniqueness of their community connections and the freshness of their products. Vermont farms are making connections to local schools, hospitals, and other large organizations; they are finding in-state markets that can help increase and promote direct farm sales.” Such initiatives can lower overhead costs, provide farmers with much-needed capital and link neighboring communities directly to the success of their local farms.

While many such initiatives are farmer driven, others are specifically supported through formal governmental action. The zoning ordinance in Vermont’s capital, Montpelier, for example, permits growers to erect farmstands on their property and sell produce grown there without acquiring any permits from the city. Local government also enables farmers’ markets by providing public space or specifically promoting the markets. Beyond these fairly regular practices, there is a significant initiative underway to provide town schools, hospitals, and other institutions with locally grown produce for their cafeterias. If successful,

37. Vermont had ninety-three separate farmers’ markets in 2008, up from three in 1986. BOLDUC & KESSEL, supra note 8, at 76–77. The state also had 185 farm stands and sixty-nine CSAs. Id.
38. In 1982, $3.8 million of farm output was sold directly to consumers in Vermont; twenty years later that number had almost tripled and now accounts for four percent of Vermont’s agricultural earnings. CFVT, supra note 12, at 59.
39. Id.
40. The Vermont Legislature recently directed the creation of a “Farm to Plate” initiative aimed at increasing statewide access to local foods. The draft plan, released to the Legislature in January 2011, highlights the importance of increasing local demand for local products along with growing the capacity of Vermont farmers and producers. Farm to Plate Initiative, VT. SUSTAINABLE JOBS FUND (2009–2010), http://www.vsjf.org/project-details/5/farm-to-plate-initiative (last visited Feb. 27, 2011).
41. MONTPELIER, VT., CITY OF MONTPELIER ZONING AND SUBDIVISION REGULATIONS § 605.I(3) (2008). This regulation does impose certain set-back and parking requirements.
42. For example, the town of St. Johnsbury traditionally held its summer farmers’ market in the parking lot of the town middle school and advertised it on the school’s announcement board located adjacent to a main town street.
43. While these initiatives are in the early stages of development, momentum is building. See, e.g., Programs: Farm to School Network, GREEN MOUNTAIN FARM-TO-SCH. (2009), http://greenmountainfarmtoschool.org/ftsnetwork.php (Green Mountain Farm-to-School provides education programs for students, fresh food for cafeterias, and community building activities); What Is Vermont FEED?, VT. FEED, http://www.vtfeed.org/about (last visited Jan. 28, 2011) (describing Vermont Food Education Every Day (FEED), which is a comprehensive education, nutrition, and waste management program that brings local farm foods to schools); What We Do, RUTLAND AREA FARM & FOOD LINK, http://www.rutlandfarmandfood.org/what_we_do.html (last visited Jan. 28, 2011) (noting
such institutional links with local agriculture could go a long way toward providing a steady market for small- and medium-scale producers.

B. Conservation Easements and Land Trusts

A preservation or conservation easement is a relatively simple and flexible means for keeping lands in cultivation by limiting the possibility of their development for a long period of time—potentially perpetually. It is also a good tool for making prime agricultural land affordable for new farmers and providing income for existing farmers. The general concept of these easements is that farmers grant some portion of the development rights to their land to the state or a designated trust and receive tax benefits in return. The state or trust then prevents development of the land or, in some cases, requires the owners to keep the land in active agricultural production. Such mechanisms for conserving land have become extremely popular in the past twenty years, and nationally the use of such easements more than doubled between 1998 and 2003.

In 1987, the Vermont Legislature established the Vermont Housing and Conservation Board (VHCB). This new body began to administer the state’s farmland conservation program. Working with local towns, state agencies, and others, the VHCB provides funds and technical assistance to help in conservation efforts. By 2000, this program had put 260 farms and 43,000 acres of land into conservation.

While the general structure of a conservation easement is fairly straightforward, problems can arise and criticism is rife. The perpetual
nature of such easements makes them a target for narrow interpretation by courts. While one property owner may place his or her land in an agricultural easement in perpetuity, the surrounding lands may develop over time and make farming the conserved land untenable. Such “changed conditions” can weaken the staying power of the easement and lead to courts altering its terms, and thus its protection of the land, in the face of a challenge. Additionally, the voluntary nature of such devices means that the lands conserved are neither necessarily prime agricultural soils nor the most aesthetically or environmentally sensitive. The owner of a prominent hill farm with a stunning view shed, or a farmer who owns flat, well-drained bottom land with good highway access may ignore easements and eventually sell out to a developer.

The sale of development rights can also injure a farmer’s bottom line more directly. With the sale or transfer of these rights, a landowner’s equity stake in their property is reduced as the resale value of the land consequently shrinks. While the farmer usually receives some direct compensation for the sale of the development rights, the decrease in equity can limit a farmer’s future ability to qualify for a loan to purchase further land or needed equipment.

A related mechanism, based more directly on free-market principles, and side-stepping some of the legal difficulties encountered in drafting and conferring easements and the resulting encumbrance on the property, is the state-sponsored Right of First Refusal (RFR). This strategy essentially enables agricultural landowners to exchange a RFR with their local municipality in lieu of some portion of their property taxes. The local government then transfers the RFR to the state, which in turn reimburses the locality for the waived taxes and passes the RFR on to a nonprofit to administer and oversee. When the landowner later wishes to sell the land, the nonprofit can exercise the RFR and purchase the land, placing any desired easements or conditions upon it at that time. In this way, the individual landowner need not risk burdening the property with an easement that may reduce its value and make it harder to sell. The clear challenge with such legislation is in convincing the state to spend its money

49. Nolon & Solloway, supra note 22, at 608.
50. Id.
52. Id. at 236.
53. Id.
54. Id. at 236–37.
to develop and fund such a program, rather than the other tax-based strategies, which may remove income from the state coffers, but do not require spending taxpayer dollars. Regardless of the precise mechanism employed, unlike direct regulation, easements provide a mechanism for private landowners to conserve their agricultural lands and attempt to maintain the productivity of their farms in the face of development pressures.

C. Tax Incentives and Current Use

As relayed above, encroaching development is one of the major challenges facing farmers today. Beyond pressuring struggling farmers to sell their pastures, urbanization drives up local property taxes as neighboring lands shift to residential use. This increase in land value, through no action of the farmer, can ratchet a tax rate up to the point of making agricultural production on the land untenable. The increased tax rate, after all, has virtually nothing to do with the productivity or profitability of the farm—let alone the market for a farmer’s product; it acts as an additional, burdensome expense. Agricultural easements provide one means of realizing tax breaks based on farming the land, albeit through a permanent designation of the land. States also provide other tax incentives for keeping lands in active use as agricultural lands.

Vermont has a model tax incentive, or “Current Use” program, called the Land Use Value Appraisal Program, which taxes property based on its current use as agricultural or forest land, rather than its market-based development potential. Like similar laws in many other states, its purpose is to promote the maintenance of farm and forestland in the face of development pressure by decreasing the property tax rate if the land is actively in use for agricultural or silvicultural purposes. Passed in 1978, the Land Use Appraisal Law set out to: (1) keep Vermont farm and forest land in active production; (2) slow the development of such lands; and (3) equalize the property tax burden of undeveloped lands. Since its initial passage, the Legislature has amended the law to include penalties for exiting the program in an attempt to halt abuse of the tax benefits by developers who purchase land and wish to limit their tax liability until the market is ripe to sell.

56. Id. § 3751.
57. Id. § 3757. Such penalties apply if the land is “developed.” See id. § 3752(5) (defining “development” as “construction of any building, road or other structure, or any mining, excavation or landfill activity” but not including construction of farm structures). In 2010, then-governor Jim Douglas
In practice, any land or structures that are owned or leased by a farmer or achieve a minimum income threshold are granted a presumption of eligibility for the program and may be enrolled. The definition for “farmer” is also income constrained, requiring any person seeking the designation to earn at least half of his or her income from the sale of products grown on the specified land. A landowner who wishes to enter the program can apply and, if accepted, have his or her land assessed at the agriculture use value for such lands. Any farm structures are assessed at zero percent of market value, and this can include any building on enrolled land valued up to $100,000. The program can also apply to certain portions of a property tract, even if the whole tract is not eligible. If a farmer disagrees with the program administrator’s assessment of his or her land value or its rejection from the program, he or she has the right to appeal.

The program attempts to create an incentive for active use of farmland and maintenance and use of farm structures, either by the property owner or through lease to an active farmer. This enables some farming operations to lease additional land from non-farming landowners as pasture or cropland and thus increase their productivity at a lower operational cost, without forcing them to purchase more land. Landowners, in turn, enjoy the applicable tax break along with the benefit of keeping their land open and in active use. The success of this program is shown through its widespread use. It is one of the most widely used preservation tools in the state as twelve thousand land owners had placed fifty-nine percent of eligible land under the program. However, a proposed amendment to the program, which would have significantly increased the withdrawal penalties and transfer taxes, was vetoed. See Current Status of a Specific Bill or Resolution 2009-2010 Legislative Session, VT. LEGIS. BILL TRACKING SYS. (May 27, 2010), http://www.leg.state.vt.us/database/status/summary.cfm?Bill=H.0485&Session=2010 (listing the legislative history of the vetoed bill).

58. VT. STAT. ANN. tit. 32, § 3752(1) (for parcels under twenty-five acres, the total gross earnings must be more than $2000).
59. Id. § 3755(a).
60. Id. § 3752(7).
61. Id. § 3756(a).
62. Id. § 3752(12), (14).
63. Id. § 3752(15).
64. Id. § 3758.
65. See, Jesse J. Richardson, Jr., Beyond Fairness: What Really Works to Protect Farmland, 12 Drake J. Agric. L. 163, 169 (2007) (explaining the function of “use-value assessment” as a “practice of valuing the property for local real property tax purposes upon the basis of its value in a particular (current) use, rather than upon the basis of its market value”).
agricultural land and forty percent of forest land—more than a third of the total land in the state—in the program by 2007.\textsuperscript{67}

One potential downside to such tax relief measures is that they can drive down local property tax revenues. As a state program, local municipalities have little control over what land is placed in the current use program or over the applicable tax rate.\textsuperscript{68} Accordingly, landowners can opt to designate their land as current use (assuming they meet the minimum requirements) and effectively remove land that may have never been agricultural from the tax rolls of the town. Towns are then forced to cope with falling property tax revenues with very little recourse. Vermont combats this potential problem paying municipalities for the revenue lost when lands enter the current use program.\textsuperscript{69} Much like preservation easements, however, another challenge with current use incentives is the voluntary nature of the scheme; it can produce a patchwork of enrolled land. Moreover, the decrease in tax burden is often not sufficient to enable the farming operation to remain profitable if other costs arise and lands encumbered by the potential penalties for exiting the program early may be more difficult to sell.

\textbf{D. Right-to-Farm (Nuisance Protection) Laws}

Much as it can inflate property tax rates, encroaching urbanization can also bring in neighbors unused to the day-to-day sights, sounds, and smells of a working farm. Whether it’s the tractors slowing traffic, escaped chickens running amok, or simply the odor of manure, many new farm neighbors often protest some of the necessary facets of farm life. In talking at a recent public forum about some of the challenges facing Vermont farmers today, several farmers noted the direct tension between Vermonters valuing the scenic beauty of a working landscape, while at the same time rejecting some of the practices necessary for making farms economically viable.\textsuperscript{70} Environmental regulations around non-point source water pollution have also increased neighbors’ complaints as more manure must


\textsuperscript{68} VT. STAT. ANN. tit. 32, § 3756 (detailing the municipality’s passive role in the process).

\textsuperscript{69} Id. § 3760(a)(1).

\textsuperscript{70} CFVT, supra note 12, at 58.
be stored on-site and spread at certain times of the year. In some instances, face-to-face complaints can evolve into legal complaints and lawsuits.

To protect farmers from just this type of nuisance suit, Vermont, along with other states, has adopted a “right-to-farm” law. This law shields farmers from suits arising from activities that might otherwise substantially impact a neighbor’s peaceful enjoyment of his or her property. It enumerates protected farming activities, including large-scale feeding operations, on-site processing, sale of farm products, and even on-site power generation from agricultural products or wastes. So long as such activities are in line with applicable laws, were “established prior to surrounding nonagricultural activities,” and have “not significantly changed since the commencement of the prior surrounding nonagricultural activity,” they are entitled to some measure of protection from suit. The statute does not define “significantly changed,” but case law suggests that expanded operations can lead to valid suits, money damages, and injunctions against growing agricultural operations.

Unlike other right-to-farm laws, which have faced constitutional challenges for being overbroad, the Vermont law does not provide

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71. Id. Environmental regulations surrounding farms present an array of challenges and an additional realm of farm-protection exemptions.


74. The law technically establishes a rebuttable presumption that specific agricultural activities are not common law nuisances. Id. § 5753.

75. Id. § 5752. The inclusion of “power generation” as a protected practice was presumably meant to enable the capture and combustion of methane gas. See generally JEFFERY W. FORWARD, VERMONT FARM METHANE PROJECT QUARTERLY REPORT (2001), available at http://publicservice.vermont.gov/energy-efficiency/ee_files/methane/4th2000.pdf (reporting on methane recovery on Vermont farms). It is unclear if a large scale bio-fuels plant, growing its own switchgrass, would qualify for this protection though it would presumably fall afoul of other requirements of the law. VT. STAT. ANN. tit. 12, § 5753(a)(1) (requiring compliance with applicable laws and “consistent with good agricultural practices”).

76. VT. STAT. ANN. tit. 12, § 5753(a).

77. See Trickett v. Ochs, 2003 VT 91, ¶¶ 3, 8, 25–26, 176 Vt. 89, 838 A.2d 66 (holding that the Vermont right-to-farm law did not apply because defendant’s business expansion was a “significant change” in their business activities).

78. See, e.g., Bormann v. Bd. of Supervisors, 584 N.W.2d 309, 321–22 (Iowa 1998) (striking down a broad right-to-farm law as an unconstitutional “taking” not providing property owners with just compensation). See generally Adam Van Buskirk, Right-to-Farm Laws as “Takings” in Light of Bormann v. Board of Supervisors and Moore v. North Idaho Farmers Association, 11 ALB. L. ENVTL. OUTLOOK 169 (2006) (comparing an Iowa Supreme Court decision holding an Iowa right-to-farm law unconstitutional with Idaho Supreme Court decision that held an Idaho right-to-farm law did not violate the Fifth Amendment).
absolute protection for farm activities. Rather, it presumes specific farming activities are protected so long as they do not have “a substantial adverse effect on health, safety, or welfare, or have a noxious and significant interference with the use and enjoyment of the neighboring property.”

Though the statute does not define “substantial adverse effect” or “significant interference,” the addition of “substantial” and “significant,” as used in these standards and supported through legislative testimony, seems to heighten the level of nuisance required to maintain a suit.

In passing this law, the Vermont Legislature specifically highlighted the importance of agricultural production in the state’s economy and the “unique and irreplaceable” nature of agricultural lands and their contribution to tourism in the state. Recognizing that “agricultural activities conducted on farmland in urbanizing areas are potentially subject to lawsuits based on the theory of nuisance,” and that such suits “encourage and could force the premature removal of the farm lands . . . from agricultural use,” the Legislature enacted a nuanced system of protections. Notably, however, this structure was meant “to protect reasonable agricultural activities conducted on the farm” and not all colorable “agricultural activities.”

Beyond the overbroad protections that some right-to-farm laws can create, one weakness of Vermont’s statute and others like it is that it can act as a limit on a farmer’s ability to diversify and expand operations once the surrounding properties shift toward residential use. In order to enjoy the protections afforded under the nuisance protection law, a farmer’s operations must pre-date the complaining neighbor’s arrival and cannot have “significantly changed” since the arrival. This means that many farms are potentially handcuffed as they attempt to respond to market changes or even when they desire to expand their operations. In one recent decision, the Vermont Supreme Court highlighted the fact that right-to-farm laws were meant to protect existing uses from the pressures of urbanization, not

79. VT. STAT. ANN. tit. 12, § 5753(a)(2).
80. See Samuel Krasnow, Farm Wars: Can “Right to Farm” Laws Resolve Growing Land Use Conflicts?, NEXT AM. CITY (Apr. 2005), http://americanicity.org/magazine/article/farm-wars-krasnow/ (tracing the evolution of Vermont’s Right-to-Farm law and the shift from an absolute protection of farming activities to a rebuttable presumption in their favor, including excerpts from legislative hearings).
81. VT. STAT. ANN. tit. 12, § 5751.
82. Id.
83. Id. (emphases added).
to permit the increase in size and scope of an existing farming operation such that it impacts rural neighbors.\(^{85}\) Such a ruling effectively ossifies the scale and manner of operations of the farm at the time the first shovel-full of dirt from a neighboring development is dug.\(^{86}\) Still, the right-to-farm law in Vermont provides a measure of protection for farmers facing encroaching urbanization and, perhaps equally as important, shows the legislative recognition of this challenge facing farmers.

**E. Statutory Exceptions from Environmental Review (Act 250)**

Act 250 is Vermont’s preeminent development review standard and is recognized as a major reason the state has maintained its rural character and avoided many of the pitfalls of widespread “sprawl” development.\(^{87}\) Act 250 review is a lengthy process and one that can result in drawn out litigation with various appeals before the state Environmental Court.\(^{88}\) Before commencing development, a property owner must obtain a permit.\(^{89}\) This permit requirement is waived for farming activities that occur on properly conserved land or that do not conflict with any previously issued Act 250 permit.\(^{90}\) Thus, farmers working on conservation easements can sidestep some of the permitting requirements imposed by Act 250.

“Development,” under Act 250, is broadly defined as “[t]he construction of improvements . . . for commercial or industrial purposes” on lots larger than one acre if the municipality does not have permanent zoning laws, or on more than ten acres if it does.\(^{91}\) This definition places any new construction on preserved land outside the protective scope noted above. Accordingly, such expansive language could provide a significant economic hurdle for farmers intending to build a new barn or modify a manure lagoon.

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\(^{85}\) See Trickett v. Ochs, 2003 VT 91, ¶¶ 23–24, 176 Vt. 89, 838 A.2d 66 (holding that expansion of defendant’s business was not protected by Vermont’s right-to-farm law).

\(^{86}\) One could argue that Trickett is limited to its facts as it dealt with a suit by neighbors who had purchased the defendant-farm’s original farmhouse and thus, as successors-in-interest, “existed” prior to any substantial changes in the farm’s operations. Id.

\(^{87}\) See Sandy Levine, Efficient Land Use Lessens Sprawl, BURLINGTON FREE PRESS, Apr. 30, 2003, at 15A (advocating continued use of Act 250).

\(^{88}\) In fairness, only about two percent of Act 250 project proposals result in legal appeals. See Just the Facts on Act 250, VT. NAT. RESOURCES COUNCIL (2008), http://www.vnrc.org/article/articleview/24232/ (reviewing disposition of all Act 250 applications in 2007).

\(^{89}\) VT. STAT. ANN. tit. 10, § 6081(a) (2006).

\(^{90}\) Id. § 6081(s).

\(^{91}\) Id. § 6001(3).
to comply with environmental regulations. However, the law carves out a specific exception for “[t]he construction of improvements for farming.”

This exemption allows farmers to avoid the potentially significant expense (in time and money) of applying for and obtaining an Act 250 permit. To meet this exception, the activities in question must fall into the definition of “farming.” This definition includes such broad categories as “the cultivation or other use of land for growing food, fiber, Christmas trees, maple sap, or horticultural and orchard crops” and “the on-site storage, preparation and sale of agricultural products principally produced on the farm” as well as the raising of livestock and horses. While the phrase “other use of land” is not defined clearly and could provide a significant loophole, and the definition as written has no requirement that such cultivation be “active,” Vermont courts read this exemption narrowly and place the burden of proof squarely on the farmers’ shoulders.

Along with easing the regulatory burden on farmers, Act 250 also demands that proposed developments take into account the impact a proposed project will have on primary agricultural soils. As one of the ten criteria considered in the Act 250 permit application process, an applicant must demonstrate that “the subdivision or development will not result in any reduction in the agricultural potential of the primary agricultural soils.” If the development will necessarily impact such soils, the proposed developer must show the development “will not significantly interfere with or jeopardize the continuation of agriculture . . . on adjoining lands or reduce their agricultural . . . potential,” and that the proposed project tract is the only suitable piece of land the developer owns. The developer must also show that all reasonable mitigating steps have been or will be taken to protect neighboring agricultural land. These mitigating steps generally

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92. *Id.* § 6001(3)(D)(i). The statute goes on to define “farming” in greater detail. *Id.* § 6001(22).
93. Part of the reason the Act 250 permitting process is so costly is because of the ease with which third parties can join in the proceedings. *See id.* § 6085 (providing criteria for establishing party status); *see also* In re Killington, Ltd., 159 Vt. 206, 213, 616 A.2d 241, 245 (1992) (recognizing the impact on the affected party, not just the physical site of development, when determining party status).
95. *See In re Ochs,* 2006 VT 122, ¶ 12, 181 Vt. 541, 915 A.2d 780 (2006) (“The farming exemption, like all exemptions, is to be read narrowly and only applied when the facts clearly support the exemption’s application.”).
97. *Id.* (emphasis added).
98. *Id.* § 6086(a)(9)(B)(i).
99. *See id.* § 6093(a) (providing necessary mitigation steps).
100. The actions required depend on the location of the project tract; if it is within a designated growth area, then the burden on the developer is lower than if the proposed project is outside such an area.
involve preserving a like or greater quantity of prime agricultural lands in the same geographic region, either through purchasing conservation easements or conserving adjoining land on the same project tract. All lands preserved through mitigating measures are placed under a conservation easement and protected under the same rubric laid out above. Lands so preserved are exempt from the need for future Act 250 permits.

The Vermont Supreme Court recently weighed in on this criterion, noting that one key inquiry into its application is the definition of “primary agricultural soils.” The Court noted that for lands to be considered primary agricultural soils, there must be “few limitations for cultivation or limitations which may be easily overcome.” In ruling on whether a parcel of land slated for development contained primary agricultural soils, the Court held that the cost of converting the land to a farm—in this case from a forested property—was significant in determining whether the land had limitations that may be easily overcome. It remains to be seen how the inclusion of any farmland-development costs into the determination of whether primary agricultural soils exist on a property may hinder the purpose of Act 250’s specific protection of potential or primary farmland.

On balance, Act 250 supports farming in Vermont by relieving farmers of some of its regulatory burden and requiring additional conservation by developers aiming to convert active agricultural land into developments. In this way, the environmental review structure of the state carves out an exception for activities that maintain the rural character and ideals of the state.

F. Regional and Municipal Planning

Beyond its regulatory review of proposed development, Act 250, as originally passed, also contained a statewide planning element. Though the planning requirement never came to fruition as the law intended, in the late

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101. Id. § 6093. Development on agricultural soils in a designated growth area requires a one-to-one ratio of preservation, id. § 6093(a)(1)(B)(ii), whereas development outside such areas can require a two-to-one or three-to-one ratio, id. § 6093(a)(2)(B).
102. Id. § 6093(b). See supra part III.B (explaining conservation easements and land trusts).
103. Id. § 6081(s)(1)(A).
105. Village Assocs., 2010 VT 42A, ¶ 12 (quoting Vt. STAT. ANN. tit. 10, § 6001(15)).
106. Id., at ¶ 15.
1980s the Vermont Legislature passed Act 200, which provides a state-level framework for Vermont towns to undertake comprehensive development planning.107 Act 200 specifically developed statewide guidelines for planning, enabling local governments to draft municipal plans,108 and requiring such a plan if the town wished to enact zoning regulations.109 Any plan thus enacted had to be in accordance with the policies set forth by the Act.110 Agricultural land preservation and protection are among the policies that are a required component of a duly adopted town plan. Specifically, plans are expected to:

[E]ncourage and strengthen agricultural and forest industries.

(A) Strategies to protect long-term viability of agricultural and forest lands should be encouraged and should include maintaining low overall density.

(B) The manufacture and marketing of value-added agricultural and forest products should be encouraged.

(C) The use of locally-grown food products should be encouraged.

(D) Sound forest and agricultural management practices should be encouraged.

(E) Public investment should be planned so as to minimize development pressure on agricultural and forest land.111

To implement these goals, every local plan must include a land-use component that identifies agricultural land in the town.112 This land is properly defined under regulations set forth by the Secretary of

109. Id. § 4401.
110. Id. § 4302.
111. Id. § 4302(c)(9).
112. Id. § 4382.
Agriculture. In identifying such lands, a development plan defines the foundation for future zoning and other land-use control measures.

In practice, town plans in Vermont recognize and attempt to promote open space and working landscapes. By stating policies and expressing aspirational goals, town plans lay the groundwork for future development bylaws, as any enacted bylaws must be “in conformance with the plan.” While plans still lack any regulatory force, as policy statements they provide a blueprint for future development and a vision for the municipality’s future. Even in some of the most sprawl-prone areas of the state—areas also rich in agricultural soils—the local plans recognize the value of maintaining patterns of rural development.

One other central value of comprehensive development planning—and a driving purpose behind Act 200—is the involvement of the local community in the drafting and approval of the municipal plan itself. The broader the public involvement in the planning process, the more investment the local community will have in the plan’s goals for protecting agricultural land and the more information will be available for the planners. In these ways, an active planning process can create the framework for broader farmland protections and increase public investment in supporting working landscapes. Still, no matter how much community support a plan receives, it lacks direct regulatory force.


114. See, e.g., SELECTBOARD, RANDOLPH TOWN PLAN: OUR TOWN IN THE HEART OF VERMONT 36, 40 (2010), available at http://randolphvt.govoffice2.com (follow “Ordinances, Plans & Policies” hyperlink; then follow “Plans” hyperlink; then follow “Town Plan” hyperlink; outlining goals and policies for future land use and zoning); TOWN OF WILLISTON, COMPREHENSIVE PLAN 19–22 (2006) [hereinafter WILLISTON PLAN], available at http://willistonvt.govoffice3.com (follow “Public Records and Documents” hyperlink; then follow “Index” hyperlink; then follow “C” hyperlink; then follow “Comprehensive Plan” hyperlink) (outlining goals and policies in preserving open space).


116. See, e.g., WILLISTON PLAN, supra note 114, at 20 (extolling requirement of open space development patterns).

117. Vt. Stat. Ann. tit. 24, § 4302(b)(2) (“To encourage citizen participation at all levels of the planning process, and to assure that decisions shall be made at the most local level possible commensurate with their impact.”).

118. See id. § 4384 (permitting public amendment of plan); id. § 4385 (requiring public hearings prior to adoption of plan).

119. See PLANNING & ZONING, supra note 23, at 10 (discussing need for effective community planning for agricultural protection).
Municipal Zoning Bylaws: Protecting Land and Preventing Over-Regulation

The final tool for protecting agricultural lands is through municipal zoning bylaws: the laws that regulate the manner in which property owners can use their land. The main zoning tool for protecting farmlands is restrictive agricultural zoning.

A carefully written agricultural zoning ordinance can prevent farmland from being converted to nonfarm uses, can prevent the fragmentation of farms, prevent land-use conflicts, and protect agricultural producers from nonfarm intrusion into agricultural areas as well as as vigorously as residential zoning can protect housing areas from commercial or industrial intrusions.120

Such zoning “prohibit[s] uses that are inconsistent with farming and limit[s] the allowed density of residential development. Lot sizes are usually anywhere from 20 to 640 acres, depending on the location.”121 By controlling building density and minimum lot size, agricultural zones limit large-scale development or piecemeal sprawl.

Some agricultural zones are expressly created to “protect and encourage farming of all kinds, as an important part of the Town’s economic base.”122 Much like unifying a commercial or industrial district, such zoning keeps farms from becoming isolated islands.123 Maintaining a “critical mass” provides a buffer between farmlands and the pressures that encroaching urbanization can bring in terms of increased property taxes, nuisance suits, changed circumstances, and other challenges.124 While such zones do not require that the land be used for farming, the limiting features of agricultural zones mean that property owners, at a minimum, are restricted in the size and scale of development they can pursue.

121. Richardson, Jr., supra note 66, at 167. In Vermont, the average agricultural zone limits minimum lot size to two acres.
124. Id.
125. Id. doing so would violate fundamental property rights.
In Vermont, the zoning enabling statute specifically identifies agricultural zones as a permissible form of land-use regulation. It notes that such zones should “permit[] all types of agricultural uses and prohibit[] all other land development except low density residential development.” Still, regulations in the state come in many different styles and with many different limitations. In some municipalities, agricultural/rural residential zones permit planned unit developments, inns, and mobile home parks. Other municipalities limit the maximum building coverage on a lot in a rural zone, while ensuring that buildings remain small and overall development compact. Still others maintain the same lot size and setback standards for all zones, but limit the permitted uses of the rural residential zone to those most amenable to agricultural or low-density use.

Criticism over such zoning schemes arises directly from the lot-size and density limitations that municipalities put in place in hopes of supporting agricultural use. If lots are the minimum allowable size (e.g., in Barnard, Vermont, two acres) they may be too small to function as productive farms. Thus, as one author puts it, “by spreading out homes in such a way that the land is not practically useable for farming or forestry, the practice [of restrictive agricultural zoning] could also accurately be referred to as ‘rural sprawl.’ The resulting lots are ‘too large to mow, but too small to plow.’” In so doing, agricultural zoning can unintentionally “result in the exclusion of low- to moderate-income families, and in forcing development further out from job and population centers (sprawl).”

Beyond this concern over “rural sprawl,” agricultural zoning, like conservations easements, can hurt farmers’ equity in their land. As the permissible use of farmers’ land is constrained, the fair market value of their property can also fall. This loss in market value can injure a

127. Id. § 4414(1)(B).
128. Id. § 4414(1)(B)(i).
130. See, e.g., BERLIN, VT. ZONING ORDINANCE TABLE 2.02 & 2.03 (2010 ed.) (limiting lot coverage to fifteen percent of property and building height to thirty-five feet).
131. See, e.g., BARNARD, VT. ZONING ORDINANCE §§ 3.1, 4.1 (2003) (providing Rural Residential zone uses and lot requirements, respectively).
132. Id. § 4.1.1(A)(a).
133. Richardson, Jr., supra note 66, at 167.
134. Id. at 166–67.
136. See id. at 2 (suggesting other factors that can play into lower farm property values).
farmer’s access to credit and increase interest rates on previously incurred debt. These dangers are most prevalent in areas with relatively small rural lots and a high rate of development. Still, the economic benefits of protecting and unifying agricultural land can, if properly recognized, outweigh the potential impacts of restrictive zoning on property values.

Along with permitting municipalities to enact zoning ordinances, the Vermont zoning enabling statute also provides a measure of protection for farmers by limiting what a municipality can regulate. Under state law, municipalities are expressly prevented from regulating the construction of agricultural structures. Such structures can include “a building, enclosure, or fence for housing livestock, raising horticultural or agronomic plants, or carrying out other practices associated with accepted agricultural or farming practices.” Besides denying municipal jurisdiction over the construction of loosely defined “farm structures,” the enabling statute also vests the Secretary of Agriculture with the ability to define “agricultural practices.” Any practice so defined is also outside the control of local governments.

This statutory scheme suggests support for agriculture by removing certain farming regulations from local administrative bodies and vesting the control in a state agency specifically focused on supporting and enhancing agriculture.

Such a regulatory exemption can provide greater freedom for local farmers to build on their land, much like the above noted Act 250 exception, yet it does not provide such a loophole that any arguable agricultural project is free from regulation. Vermont courts have held that undertaking activities that are generally done for agricultural purposes does not make the specific work “agricultural” and thus exempt for local zoning.

137. Id. at 4.
139. Id. § 4413(d).
140. Id. § 4413(d)(1).
141. Id. § 4413(d).
142. Id.
143. Id. at 4.
144. See id. § iii, at 20 010 008-2 (requiring approval from the Vermont Agency of Natural Resources before constructing a “new farm structure”); id. § 2.06, at 20 010 008-3(broadly defining “farm structure” to include “a structure or structures . . . that is used by a person for agricultural production” and meets other criteria); id. 2.18, at 20 010 008-4 (defining “structure” to exclude “dwelling[s] for human habitation” but to include other buildings used for a wide range of agricultural pursuits from maple sugaring to housing livestock); id. § 4.07, at 20 010 008-6 (laying out regulations on construction of farm structures).
regulation. Indeed, the purpose of the work must be for an agricultural or silvicultural end. Likewise, the Secretary of Agriculture’s control over “farming structures” can have a significant impact on a farm’s ability to build structures, even if the local municipality supports their construction. The state-level oversight of a small, local project can cut against the ideal of local control that governs much of land-use regulation.

While zoning provides an important tool in protecting agricultural uses of land, it similarly can provoke many of the same pressures that it was meant to alleviate. In an effort to carve out zones for agriculture, municipalities can end up welcoming in scattered development and expansive homes.

CONCLUSION

Preserving the agricultural history and ethic of the state is important for Vermont’s present and future. An active, working landscape is a value shared by its residents as much as it is appreciated by the tourists who come to the state each year. Protecting working farms and open pastures provides economic, environmental, and aesthetic benefits to the state and is a central goal in the state’s regulatory structure, as well as in local municipalities’ development plans. In an effort to protect this resource, Vermont has undertaken many different initiatives: informally, legislatively, and through various incentive and regulatory programs.

While the current slate of preservation and protection tools can work in concert to help Vermonters continue to farm the land, they are but one form of protection and support for an embattled way of life and provide mixed results. It is true that restrictive zoning can decrease the possibility that a new development will “change the conditions” upon which a conservation easement relies, just as the protections that Right-to-Farm laws provide may make a home buyer think twice before purchasing a building lot next to a hog farm. Nonetheless, many of these same tools that are put in place to protect farmers can also constrain their activities, impact their financial foundations, and welcome in the type of development pressures they were drafted to avoid. The threats of decreased land equity, increased rural

144. See Sunset Cliff Homeowners Ass’n v. City of Burlington, 2008 VT 56, ¶ 11 n.2, 184 Vt. 533, 955 A.2d 524 (finding developer incorrect in attempt to avoid local zoning by characterizing tree cutting, land clearing, and ditch work as “agricultural” in nature).
145. Id.
sprawl, and encumbered land can also work to grind down a farmer’s reserves and push them out of business. This is not to suggest that more regulation or land-use tools are needed. To the contrary, wiser policy and additional techniques are vital to farming’s long-term sustainability. The challenge that many of these land-protection programs face in preserving farms in the state is that they are only able to address some of the pressures facing farmers today. As one scholar put it:

The availability of land does not by itself ensure the continuation of farming. Programs that impose substantial measures to protect not just land, but agricultural operations themselves represent a step forward. Whatever the level of sophistication, however, these programs share a common denominator: they treat the protection of agricultural land, even the protection of agriculture itself, as a land use issue. This focus is far too narrow. Land is but one input in the agricultural production process. Farm production needs other resources . . . .

Fortunately for Vermont’s farmers, the above-described tools are only part of the state’s efforts to protect its heritage. As flawed as some of these tools may be, their intent to promote agriculture is clear, and there is little doubt that they do relieve some of the pressures facing farmers today. That said, the importance of farming in Vermont and to Vermont cannot be understated and in the face of increasing financial, development, and succession pressure, farms need all the help they can get. Focusing on land-preservation tools is but one avenue for protecting the future.

147. Richardson, Jr., supra note 66, at 165 (internal quotations and citations omitted).
THE STRUGGLE BETWEEN MAN AND NATURE—AGRICULTURE, NONPOINT SOURCE POLLUTION, AND CLEAN WATER: HOW TO IMPLEMENT THE STATE OF VERMONT’S PHOSPHOROUS TMDL WITHIN THE LAKE CHAMPLAIN BASIN

Lara D. Guercio

TABLE OF CONTENTS

Introduction ............................................................................................... 456
I. Nonpoint Source Pollution Control Under a Federalist System ............ 459
   A. Clean Water Act: Point Versus Nonpoint Source
      Pollution Control ................................................................. 459
   B. “New Federalism” and Deference to States for Nonpoint Source
      Regulation ........................................................................... 463
   C. Federal Nonpoint Source Pollution Control Initiatives .............. 466
   D. Addressing Nonpoint Source Pollution Through TMDLs............. 476
II. Vermont’s Lake Champlain TMDL and Agricultural 
    Nonpoint Sources ........................................................................ 486
   A. Background on Lake Champlain’s 2002 Phosphorus TMDL .......... 486
   B. Existing State Water Quality Laws and Regulations ............... 493
III. State Implementation of TMDLs: A Toolbox of 
    Legal Mechanisms ...................................................................... 499
    A. State and Local Land Use Planning and Zoning Controls ........ 499
    B. Watershed-Based Natural Resources Planning, Management, 
       and Zoning ........................................................................ 508

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INTRODUCTION

The importance of water quality and its interrelationship with the health of the land and humans has long been observed. In 1864, George Perkins Marsh in his seminal book *Man and Nature* stated,

But the great, the irreparable, the appalling mischiefs which have already resulted, and threaten to ensue on a still more extensive scale hereafter, from too rapid superficial drainage, are of a properly geographical character, and consist primarily in erosion, displacement, and the transportation of the superficial strata, vegetable and mineral—of the integuments, so to speak, with which nature has clothed the skeleton framework of the globe.1

In *Man and Nature*, Marsh discusses the direct and indirect effects of the destructive capacity of human agency on aquatic life,2 and the beneficial influence of vegetative land cover on decreasing overland and in-stream sediment transportation of “living waters.”3 In observing the transporting power of rivers, he details the downstream deposition of various types of sediments accumulated within a local Vermont milldam and its effects on the stream’s ecology.4 To help identify potential solutions to remedy the negative historical results of man-made modifications of nature, Marsh asks

2. *Id.* at 99 (“The inhabitants of the waters seem comparatively secure from human pursuit or interference by the inaccessibility of their retreat . . . . Human agency has, nevertheless, both directly and incidentally, produced great changes in the population of the sea, the lakes, and the rivers, and if the effects of such revolutions in aquatic life are apparently of small importance in general geography, they are still not wholly inappreciable. The great diminution in the abundance of the larger fish employed for food or pursued for products useful in the arts is familiar, and when we consider how the vegetable and animal life on which they feed must be affected by the reduction of their numbers, it is easy to see that their destruction may involve considerable modifications in many of the material arrangements of nature.” (emphasis added)).
3. *Id.* at 194.
4. *Id.* at 218.
Americans to reevaluate their relationship with the natural environment, seek ways to restore the natural proportions of our Nation’s rural landscape (or during his era, the “woodland and plough land”), and “devise means for maintaining the permanence of its relations ... to the springs and rivulets.”

To restore the “disturbed harmonies” of nature, he finds that humans must reconstruct the “damaged fabric which the negligence or the wantonness of former lodgers had rendered untenable.”

Significant progress has been made within the fields of ecological science and environmental law over the last century and a half since the first publication of Man and Nature. However, Americans still collectively struggle to effectively regulate our land use and other man-made modifications to physical geography for the purpose of improving impaired water quality. As a society, we have enacted relatively strong federal laws, such as the Clean Water Act (CWA) of 1972 and its amendments. However, almost forty years later, we have yet to restore many of the “disturbed harmonies.” These include the relations between human usage of land and water resources, and adverse effects of land use activities on the ecological health of many streams, rivers, and lakes. As the sesquicentennial anniversary of the first publication of Marsh’s Man and Nature approaches, this article evaluates progress made (or not made) in this country, as applicable to Vermont. It also examines our relationship with land and water, specifically in regards to agricultural nonpoint pollution and water quality.

In its declaration of policy for the CWA, as included in 33 U.S.C. § 1251(a), Congress announced its broad and lofty goals of restoration and maintenance of “the chemical, physical, and biological integrity of the Nation’s waters.” Notable progress has been made in improving water quality by focusing primarily on the control of point source pollution. However, relatively little attention has been effectively focused on addressing large inputs from nonpoint sources, specifically runoff from privately owned farmland and its cumulative effects on water quality and aquatic health. Few states, including Vermont, have yet to successfully implement all their responsibilities related to section 303(d) of the CWA, as codified in 33 U.S.C. § 1313(d), which requires that “[e]ach State shall identify those waters within its boundaries for which the effluent limitations ... are not stringent enough to implement any water quality standard applicable to such waters” and “establish for [these] waters” a

5. Id. at 280.
6. Id. at 35.
Total Maximum Daily Load (TMDL) of pollutants, which includes scientific calculations for nutrient and sediment loading.

The federal government’s authority to require states to establish TMDLs has been an issue of heated legal debate under the governing principles of federalism. Courts, however, have held that the CWA unambiguously requires the establishment of TMDLs for waters failing to achieve applicable water quality standards. Further, in a suit brought by a private landowner, the Ninth Circuit in *Pronsolino v. Nastri* held that the U.S. Environmental Protection Agency (EPA) was authorized to determine the TMDL for a river polluted solely by logging runoff and other nonpoint sources, after California failed to timely establish a TMDL for this in-state waterway. In *Pronsolino*, the Court also found that the EPA’s use of federal authority to determine the Garcia River’s TMDL did not violate the balance of federal-state control established by the CWA or intrude upon the state’s traditional control of land use, as the statute expressly requires that states decide how to implement TMDLs and monitor effluents in impaired rivers.

This article provides an overview of the CWA and section 303(d), examines case law interpreting the respective roles of the EPA and states in performing and implementing TMDLs for impaired waters, reviews other efforts and potential approaches for restoring impaired waterways, and suggests ways the State of Vermont can reduce pollutant loads identified by scientifically-based TMDL studies. However, as illustrated in political debates regarding approval and implementation of the State’s Phosphorus TMDL for Lake Champlain, there are few easy solutions to these problems. Below, Part I discusses nonpoint source pollution control under the CWA as applied within our federalist system of governance. Part II reviews Vermont’s Phosphorus TMDL for Lake Champlain (the Lake) approved by the EPA in 2002, evaluates the State’s efforts to implement the TMDL, and identifies existing agricultural nonpoint sources which continue to contribute heavily to the Lake’s impaired water quality, as well as current State regulations and programs related to agricultural nonpoint source pollution control. Part III evaluates legal mechanisms and systems of governance utilized, established, or contemplated by other states and local
authorities, which could be adopted or used to further enhance existing State programs to address the continued agricultural nonpoint source (NPS) pollution within the Lake’s watershed. These programs include state and local land use planning and zoning measures; watershed-based natural resources planning, management, and regulation; mandatory agricultural best management practices, and whole farm conservation plans; taxation of agricultural inputs and byproducts which contribute to NPS pollution and property tax abatement for well-managed farmlands; and watershed-based pollution trading. Part IV provides final suggestions and remarks on ways that the State of Vermont and its citizens can successfully implement the 2002 Phosphorus TMDL to restore and maintain the Lake’s water quality.

I. NONPOINT SOURCE POLLUTION CONTROL UNDER A FEDERALIST SYSTEM

As noted above, Part I discusses NPS pollution control under the U.S. Clean Water Act as applied within our federalist system of governance. Specifically, it outlines key CWA provisions and discusses distinctions between point and NPS pollution control; reviews the 1970s New Federalism policy and the legislative history of the CWA regarding federal deference to states on NPS regulation; provides an overview of federal NPS pollution control initiatives, including sections 208 and 319 of the CWA and section 1455b of the Coast Zone Management Act (CZMA); details the pollution load calculations and planning requirements under section 303 of the CWA and related current EPA regulations and guidance; and examines case law interpreting the application of TMDLs in addressing NPS pollution, as well as the limits on federal authority to implement, or require states to implement, TMDLs. Finally, this section concludes with a discussion of the success (or failure) of cooperative federalism in improving water quality.

A. Clean Water Act: Point Versus Nonpoint Source Pollution Control

In the 1972 Amendments to the Federal Water Pollution Control Act, commonly referred to as the Clean Water Act, Congress set forth a broad declaration of its goals and policy to restore and “maintain the chemical, physical, and biological integrity of the Nation’s waters.”13 Since the Act’s

enactment nearly forty years ago, notable progress has been made under its direction to improve water quality nationwide, primarily by focusing on the control of point source chemical pollution. But, relatively little attention has been paid to addressing the inputs from nonpoint sources, including runoff from agricultural lands, and their cumulative effects on the physical and biological integrity of impaired waterbodies. As observed by Professor Oliver Houck, nonpoint sources are “[t]he big enchilada. . . . [NPS] pollution has become the dominate water quality problem in the United States, dwarfing all other sources by volume and, in conventional contaminants, by far the leading cause of nonattainment [of water quality standards] for rivers, lakes, and estuaries alike.”

He further notes that it is “no secret” that the main reason for this “mushrooming problem is the fact that while other sources have been abated through required controls and their enforcement, no comparable controls . . . appl[y] to agriculture.”

While the control of both point and nonpoint sources of pollution is a stated goal of the CWA, it clearly defines “point source” while the term “nonpoint source” is undefined by this statute. As amended in 1987, Congress expressly found in CWA § 101(a)(7) that, in order to achieve its declared objective to restore and maintain the Nation’s waters, “it is the national policy that programs for the control of nonpoint sources of pollution be developed and implemented in an expeditious manner so as to enable the goals of this chapter to be met through the control of both point

14. See Robert W. Adler, The Two Lost Books in the Water Quality Trilogy: The Elusive Objectives of Physical and Biological Integrity, 33 ENVTL. L. 29, 29 (2003) [hereinafter The Two Lost Books in the Water Quality Trilogy] (“While progress has been made in moving toward ‘chemical’ integrity, . . . both the ‘physical’ and ‘biological’ integrity books in the trilogy have remained largely hortatory. Empirical evidence shows measurable gains in reducing chemical pollution, but in the thirty years since the law was passed, the overall health of the nation’s freshwater aquatic ecosystems has declined dramatically. . . . [N]either the federal nor the state agencies charged with implementation of the CWA have taken full advantage of their existing legal authority to address the physical and biological books in the water quality trilogy.”); see also Robert W. Adler, Integrated Approaches to Water Pollution: Lessons from the Clean Air Act, 23 HARV. ENVTL. L. REV. 203, 203 (1999) [hereinafter Integrated Approaches to Water Pollution] (“Significant water pollution problems remain throughout the United States a quarter-century after enactment of the Nation’s major water pollution-fighting statute, the Clean Water Act. These problems stem in large part from inadequate programs to address cumulative harm to aquatic ecosystems from disparate and diffuse pollution sources. One viable solution would be to adopt enforceable controls on the largest remaining source of water pollution: runoff from farms and other generally unregulated sources (so-called ‘nonpoint source pollution’).”); ROBERT V. PERCIVAL ET AL., ENVIRONMENTAL REGULATION: LAW, SCIENCE, AND POLICY 703 (5th ed. 2006) (describing nonpoint sources as important contributors to water pollution that “have largely escaped federal regulation because of political, administrative, and technical difficulties”).


16. Id. at 60–61.
and nonpoint sources of pollution.” The term point source is precisely defined to include:

> [A]ny discernable, confined and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, [CAFO is defined by EPA regulations to include an Animal Feeding Operation which stables or confines as many as or more than the numbers of animals as specified therein; farms with 700 mature dairy cows whether milked or dry or 1,000 non-dairy cattle including heifers are defined as a Large CAFO] or vessel or other floating craft, from which pollutants are or may be discharged.

The CWA explicitly states that a point source “does not include agricultural stormwater discharges and return flows from irrigated agriculture.” Further, by narrowly defining the term “discharge of a pollutant,” as “any addition of any pollutant [with ‘pollutant’ also very specifically defined by the CWA] to navigable waters from any point source,” the CWA does not

18. 40 C.F.R. § 122.23(b)(4) (2009). Under 40 C.F.R. § 122.23(b)(6), a “Medium CAFO” is defined to include “any [Animal Feeding Operation] with the type and number of animals that fall within any of the ranges listed in paragraph (b)(6)(i) of this section and which has been defined or designated as a CAFO.” The type and number of animals includes “200 to 699 mature dairy cows, whether milking or dry,” id. § 122.23(b)(6)(i)(A), and “300 to 999 cattle other than mature dairy cows or veal calves. Cattle includes but is not limited to heifers, steers, bulls and cow/calf pairs.” Id. § 122.23(b)(6)(i)(C). And further, to be defined as a “Medium CAFO” either:

(A) Pollutants are discharged into waters of the United States through a man-made ditch, flushing system, or other similar man-made device; or

(B) Pollutants are discharged directly into waters of the United States which originate outside of and pass over, across, or through the facility or otherwise come into direct contact with the animals confined in the operation.

Id. § 122.23(b)(6)(ii) (emphasis added). Finally, 40 C.F.R. § 122.23(c) describes how an AFO can be designated as a CAFO, which includes its designation by a State Director and/or Regional Administrator as a significant contributor of pollutants to waters of the United States, after considering relevant factors, which include: size, amount of waste reaching waters, location, means of conveyance, slope, vegetation, rainfall, and other factors affecting the likelihood or frequency of discharge and “other relevant factors.”Id. § 122.23(c).

20. Id.
21. Id. § 1362(12) (emphasis added).
require a permit under the national pollutant discharge elimination system (NPDES) for the discharge of pollution from nonpoint sources. However, the CWA does not explicitly define the term NPS. (although one could argue that it is implicitly defined in the negative to include at least agricultural stormwater discharges and irrigation return flows). According to the EPA:

[U]nhlike pollution from industrial and sewage treatment plants, [NPS pollution] comes from many diffuse sources. NPS pollution is caused by rainfall or snowmelt moving over and through the ground. As the runoff moves, it picks up and carries away natural and human-made pollutants, finally depositing them into lakes, rivers, [and] wetlands . . . .”

The EPA defines NPS pollutants to include “[e]xcess fertilizers . . . from agricultural lands and residential areas;” “[s]ediment from improperly managed construction sites, crop and forest lands, and eroding streambanks;” “[o]il, grease, and toxic chemicals from urban runoff and energy production;” as well as “[b]acteria and nutrients from livestock, [and] pet wastes.” Other identified nonpoint sources include “atmospheric deposition and hydromodification.” “The main [NPS] contaminants are sediment, bacteria, nutrients, toxic chemicals and metals.” Besides largely unsuccessful federal NPS planning requirements, grant funding conditions,

22. See id. §§ 1342(l)(1)-(2), 1362(14) (providing that permits are not required for certain nonpoint source pollutants, such as “return flows from irrigated agriculture” and “stormwater runoff from oil, gas, and mining operations”).


25. Id.; see PERCIVAL ET AL., supra note 14, at 703 (including atmospheric deposition as a nonpoint source pollutant). Note, however, that stormwater runoff from urban and residential areas and construction sites are, under many if not most circumstances, subject to NPDES permitting as point sources. See Clean Water Act § 402(p)(2)(E), 33 U.S.C. § 1342(p)(2)(E) (providing residual designation authority to regulate stormwater discharges that contribute to water quality standard violations or that significant contribute to pollutants “waters of the United States”); see also Stormwater Discharges from Municipal Separate Storm Sewer Systems (MS4s), U.S. ENVTL. PROTECTION AGENCY, http://cfpub.epa.gov/npdes/stormwater/munic.cfm (last updated Apr. 15, 2010, 11:56 AM) (explaining that NPDES permits are required for stormwater runoff); EPA Construction General Permit, U.S. ENVTL. PROTECTION AGENCY, http://cfpub.epa.gov/npdes/stormwater/cgp.cfm (last updated Apr. 9, 2010, 11:18 AM) (providing an overview on NPDES requirements for construction activities).

and inclusion of NPS in TMDLs calculations for impaired waterways that do not meet state water quality standards (discussed below), the CWA leaves the regulation and enforcement of NPS pollution controls, and/or implementation of voluntary NPS cleanup initiatives, primarily within the authority and discretion of individual states.

B. "New Federalism" and Deference to States for Nonpoint Source Regulation

The original CWA of 1972 mandated major changes in the United States water pollution control strategy, specifically in terms of enforcement, standards, and planning requirements. The CWA included stronger federal enforcement authority than older water pollution control statutes such as the Water Quality Acts of 1948 and 1965, which included primarily federal funding for state and municipal programs and, with the 1965 Act, state-level water quality standards subject to federal review and approval. A complex bill from the start, Senator Edmund S. Muskie (D-Me.) was quoted as saying that during his long tenure in the U.S. Senate, “no bill has consumed so much time, demanded so much attention to detail and required such arduous efforts to reach final agreement . . . .” Beyond the technical complexity of water pollution control, at the time of the Act’s passage, the Nixon Administration was faced with “the dilemma of integrating the perceived need and loud public demand for quick, strong action to control water pollution with the administration’s oft-expressed desire to return federal powers and revenues to state and local governments.” Espousing the doctrine of “New Federalism” (in contrast to the “Cooperative Federalism” promoted by his Democratic predecessors), Nixon offered “[o]ne of the fullest elaborations on the meaning and rationale behind New Federalism . . . in his January 22, 1971 State of the Union Message,” which came on the eve of legislative action on the CWA. In addressing his goal to strengthen and renew state and local governments, Nixon found that,

The time has now come in America to reverse the flow of power and resources . . . back from Washington to the

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28. HOUCK, supra note 15, at 13; see also PERCIVAL ET AL., supra note 14, at 590 (outlining prior water pollution control statutes).
29. LIEBER & ROSNOFF, supra note 27, at 7 (quoting Edmund S. Muskie, Remarks at the Bradley, Woods, and Co. Dinner Seminar (Dec. 12, 1972)).
30. Id. at 1.
31. Id. at 2.
States . . . The time has come for a new partnership between the Federal Government and the States and localities—a partnership in which we entrust the State and localities with a larger share of the Nation’s responsibilities, and in which we share our Federal revenues with them so that they can meet those responsibilities.32

In another description of New Federalism included in his 1972 Environmental Message, Nixon stated that the “[p]rimary responsibility rests with State and local government, consumers, industry and private organizations of various kinds—but the Federal Government must provide leadership.”33 The original CWA was passed on October 19, 1972, only a few weeks prior to the controversial 1972 presidential election. But, while the CWA was enacted at a time when the Nixon administration and many Congressmen were heralding the merits of New Federalism, the CWA actually created expansive areas of federal responsibility in the area of water pollution control.34 However, concerns expressed by stakeholders (including the National Governors’ Conference) that the diversity of water quality problems nationwide were not amenable to inflexible federal standards35 is also reflected in the CWA’s lack of federal direction, as well as broad authority retained by states, over nonpoint sources. The CWA’s failure to successfully “reconcile the requirements for federal standards and local discretion is amply illustrated in the legislative history, initial implementation, and the effects of such legislation upon state water pollution control programs.”36 The political debate between strong federal standards and state discretion over water quality regulation, specifically for NPS pollution, provides one possible explanation for Professor Robert Adler’s observation that “[t]he CWA is schizophrenic in many ways, most notably in its bifurcated technology-based (reducing pollution as much as possible with available technology) and water quality-based (reducing pollution as much as necessary to protect health and the environment) approaches.”37

32. Id. (quoting Annual Message to the Congress on the State of the Union, 7 Wkly. Compilation of Presidential Documents 4, 92 (Jan. 25, 1971)).
33. Id. at 5 (quotation omitted).
34. Id. at 198–99.
35. Id. at 191 (citing Water Pollution Control Legislation—1971: Hearings on H.R. 11,896, H.R. 11,895: Before the Comm. on Public Works, 92d Cong. 520 (1971)).
36. Id. at 1.
While Congress provided clear authority to the federal government to regulate the discharge of pollutants from point sources, it also explicitly and implicitly gave states primary responsibility for the broader problem of water pollution, including continued authority over NPS control, specifically the regulation of land use, which directly contributes to NPS water pollution. Nixon’s New Federalism doctrine, discussed above, is echoed in CWA section 101(b), which states that,

> It is the policy of the Congress to recognize, preserve, and protect the primary responsibilities and rights of States to prevent, reduce, and eliminate pollution, to plan the development and use (including restoration, preservation, and enhancement) of land and water resources. It is the policy of Congress that the States manage the construction grant program under this chapter and implement the permit programs under sections 1342 [CWA section 402, requiring NPDES permits for point source pollution discharges] and 1344 [section 404, requiring permits for the disposal of dredged or fill material into navigable waters] of this title. It is further the policy of Congress to support and aid research relating to pollution abatement and to provide Federal technical services and financial aid to State and interstate agencies and municipalities in connection with the prevention, reduction, and elimination of pollution.

As noted by Adler, section 101(b) combined with section 101(g) of the CWA (which was added in 1977 and recognizes state authority to allocate water resources), provides “strong indications” that “while Congress designed a strong federal role in programs to reduce or eliminate the discharge of pollutants, including both oversight and direct action, it intended that states would be primarily responsible for the more broadly defined problem of pollution.” While other provisions of the CWA, specifically sections 102(a) and 104(a), can be interpreted to shed some doubt on this “apparently clean division of authority” between federal and state responsibilities for water pollution control, the EPA to date has not interpreted these provisions expansively. Thus, the prevailing “clear division” interpretation of the Act embraced by the EPA over the last thirty plus years, generally provides the federal government with “direct and

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39. Id. (emphasis added).
40. The Two Lost Books in the Water Quality Trilogy, supra note 14, at 54.
41. Id. at 55.
exclusive authority in certain aspects of point source pollutant control, . . . [and] [i]n other areas of point source control . . . direct regulatory authority absent delegation of that responsibility to qualified states with approved programs.” 42 However, by contrast, in federal programs directed specifically at nonpoint sources, such as the CWA section 208 “areawide waste treatment management plans” and section 319 water quality management plans (discussed below), primary authority is “ceded more clearly to the states.”43

C. Federal Nonpoint Source Pollution Control Initiatives

Over the last thirty plus years, Congress and the EPA have experimented with the enactment and implementation of a series of federal NPS planning initiatives. The first two, CWA section 208 and CWA section 319 planning, are widely viewed as unsuccessful, for reasons identified and discussed below. While not yet fully tested, other programs which present more potential promise in achieving the CWA’s water quality objectives include NPS pollution control under section 1455b of the CZMA and the recently reinvigorated requirements of section 303(d) of the CWA. Specifically, section 303(d) requires states to identify waters where technology-based effluent limitations are not stringent enough to meet applicable water quality standards and establish TMDLs to meet those standards.44

1. Section 208 Planning

Included in the CWA section 208, or as entitled “Areawide Waste Treatment Management,” requires the identification and designation of areas having substantial water quality control problems.45 Under section 208(b), States were supposed to develop twenty year plans to address many land-use-based pollution sources and submit these plans to the EPA.46 Specifically, section 208 plans were required to identify agricultural

42. Id. at 56.
43. Id.
45. Id. § 1288 (emphasis added); see also Natural Res. Def. Council v. Costle, 564 F.2d 573, 578, 580 (D.C. Cir. 1977) (“[T]he 1972 CWA in section 208 sets up a comprehensive scheme for the elimination of water pollution in all areas of a State, both urban-industrial areas and agricultural and forest areas. We think it unreasonable to believe that the Congress intended to exempt from this scheme 95% of the State’s areas,” and that “the EPA may of course employ the accepted and traditional means of gaining State compliance by withholding funds under section 208(f), but that method of stimulation would not violate the Tenth Amendment.”).
nonpoint sources of water pollution and their cumulative effects, as well as manure disposal area runoff and land used for livestock and crop production, and “methods (including land use requirements) to control to the extent feasible such sources.”47 But, the contents of the plan were largely left to the state’s discretion.48 To assist states with the development of these plans, section 208(i) provides states, upon their request, with free technical assistance from the U.S. Fish and Wildlife Service for developing state-based best management practices (BMPs).49 Further, section 208(j) authorized the U.S. Department of Agriculture to enter into five- to ten-year agricultural cost-sharing contracts with “owners and operators having control of rural land for the purpose of installing and maintaining measures incorporating [BMPs] to control nonpoint source pollution for improved water quality” in areas which the EPA had approved a plan under section 208(b).50

Despite its stated intentions to help states address NPS pollution, and directly and indirectly assist farmers in implementing BMPs to control runoff, the water quality planning process in section 208 “is widely viewed as a failure.”51 While the EPA approved 209 of the 222 plans submitted by 1982, most approved plans failed to adequately identify NPS pollution regulatory mechanisms (e.g., local or state land use requirements and controls).52 Many plans designated state conservation agencies and local Conservation Districts responsible for implementation, but did not utilize state-based land use regulatory powers.53 Never formally repealed, section 208 remains “on the books,” although federal funding for the program ended in 1981.54 Key reasons cited for its early failure include: lack of administrative support; absence of a link between planning and implementation; lack of financial assistance or other incentives to link

47. Id. § 1288(b)(2)(F) (emphasis added).
48. Addressing Barriers to Watershed Protection, supra note 37, at 1042 n.413 (citing Shanty Town Assocs. Ltd. P’ship v. EPA, 843 F.2d 782, 791 (4th Cir. 1988) (stating that there is “no direct mechanism by which EPA can force the states to adopt adequate nonpoint source pollution control programs [under § 208],” but that Congress intended the EPA to do so through threatened grant withholding)).
49. 33 U.S.C. § 1288(i).
50. Id. § 1288(j)(1).
52. Larry C. Frarey, Ron Jones & Staci J. Pratt, Conservation Districts as the Foundation for Watershed-Based Programs to Prevent and Abate Polluted Agricultural Runoff, 18 HAMLING L. REV. 151, 156 (1994).
53. Id.
54. Id. at 156–57 (identifying examples of implemented state regulatory mechanisms); Addressing Barriers to Watershed Protection, supra note 37, at 1043.
planning to implementation; a very wide gap between the authorization and appropriations; and finally a “basic resistance of local governments to federal efforts to dictate planning structures and results, however flexibly those programs are designed.”

2. Section 319 Management Plans

Six years after discontinuing funding for section 208 planning, Congress made another attempt to influence state water quality planning to reduce polluted runoff when it added section 319 to the CWA. In its 1987 Amendments, Congress added a declaration to CWA section 101(a)(7) that it is a national policy to quickly develop and implement programs to control both point and NPS pollution. Under section 319, entitled “nonpoint source management programs,” states were (and still are) required to submit “state assessment reports” to the EPA which “identifies those navigable waters within the State which, without additional action to control nonpoint sources of pollution, cannot reasonably be expected to attain or maintain applicable water quality standards or the [CWA’s] goals and requirements.”

Further, section 319 also requires states to develop “state management plans” which addressed the control of NPS water pollution. CWA section 319(b)(2)(A)–(E) provide specific requirements for the implementation of state NPS plans, including: identification of BMPs to reduce NPS pollution loading; identification of programs to achieve implementation of BMPs; a schedule with milestones for program implementation; certification by the state’s attorney general that the laws of the state provide adequate authority to implement the NPS management plan; and identification of assistance and funding sources. Finally, CWA sections 319(b)(3)–(4) require that states “to the maximum extent practicable, involve local public and private agencies” with NPS pollution control expertise, and “develop and implement” their NPS programs on a “watershed-by-watershed basis.” States with approved assessment reports and plans are eligible for federal financial assistance to implement NPS programs.

55. Addressing Barriers to Watershed Protection, supra note 37, at 1044; Percival et al., supra note 14, at 704.
57. Id. § 1329(a)(1)(A).
58. Id. § 1329(b)(1).
59. Id. § 1329(b)(2)(A)–(E).
60. Id. § 1329(b)(3)–(4).
61. Id. § 1329(b)(1) (2006).
The 1987 Amendments’ section 319 state assessment and planning requirements generated early enthusiasm by authorizing $400 million in federal grants for state programs. Like section 208 (the predecessor to section 319), only a portion of these funds were actually appropriated and only about ten percent of this initial authorization was distributed over the next three years.  

Most observers find that section 319 has not made significant progress in curbing runoff pollution, although analyses of the reasons for this failure vary. Notably, Professor Adler observes “EPA’s only leverage under section 319 was to withhold section 319 grant funds (as opposed to EPA’s broader mandate under section 303 to adopt federal water quality standards and implementing mechanisms when a state version is lacking).” In his general critique of the CWA, Professor Victor Flatt notes that for NPS control, including runoff attributed to agriculture, silviculture, mining and construction, the “federal role is essentially one of advice and encouragement.” He further observes that while “technically the law is supposed to identify problems with non-point pollution sources and have them corrected[,] . . . there is no discipline in the CWA that ensures that this clean-up enforcement of [NPS] will or must occur.” In sum, mostly “carrot” (e.g., grant funding) with no real “stick” (e.g., enforcement), section 319 provides limited incentives for states lacking in political will to cleanup impaired waters or control nonpoint sources.

3. Section 1455b Coastal NPS Planning

While not part of the CWA or directly applicable to the State of Vermont (which is not traditionally or definitionally considered a “coastal state”), 16 U.S.C. § 1455b, a provision of the Coastal Zone Management Act of 1972 (CZMA), allows states to address nonpoint source pollution (NPS) through state plans. The CZMA defines a “coastal state” as one of the United States in, or bordering on, “one or more of the Great Lakes.” While Lake Champlain is not considered one of the Great Lakes, it is physically connected to them by the Richelieu River, which drains the Champlain-Richelieu watershed and enters the Saint Lawrence River northeast of Montreal, Canada. See USDA 2007 Census of Ag., WATERSHEDS, Vol. 2.

62. PERCIVAL ET AL., supra note 14, at 704–05.
63. Id. at 705; see Addressing Barriers to Watershed Protection, supra note 37, at 1045 n.427 (“The section 319 program has helped States address nonpoint source pollution. However, it has not been successful because some State plans are inadequate and funding has been lacking.” (quoting S. REP. NO. 103-257, at 47 (1994))). Further, Adler personally notes that “Section 319 is only moderately more aggressive than section 208[,]” and while the EPA could have elected to adopt a stricter view through its section 319 plan approval process and require states to adopt regulatory programs to control nonpoint sources, “for political reasons [it] elected not to play hardball.”
64. Addressing Barriers to Watershed Protection, supra note 37, at 1045 n.427.
66. Id. at 598–99.
67. The term “coastal state” in the CZMA is defined by 16 U.S.C. § 1453(4) to mean “a state of the United States in, or bordering on, . . . one or more of the Great Lakes.” 16 U.S.C. § 1453(4) (2006). While Lake Champlain is not considered one of the Great Lakes, it is physically connected to them by the Richelieu River, which drains the Champlain-Richelieu watershed and enters the Saint Lawrence River northeast of Montreal, Canada. See USDA 2007 Census of Ag., WATERSHEDS, Vol. 2,
Act (CZMA) added by Congress in its 1990 amendments requires states with federally approved coastal management programs to develop a Coastal Nonpoint Pollution Control Program subject to approval by the U.S. EPA and National Oceanic and Atmospheric Administration (NOAA). Professor Robert Percival observes that although “the addition of yet another planning requirement to federal law is not in itself of any great significance, section 1455b . . . requires far more specificity in nonpoint source management planning than ever before.” Specifically, these requirements include the identification by states of land uses that “individually or cumulatively, may cause or contribute significantly” to the degradation of currently impaired coastal waters and those coastal waters that are “threatened by reasonably foreseeable increases in pollution loadings from new or expanding sources.”

Further, section 1455b requires implementation and “continuing revision” of management measures applicable to identified land uses and critical areas to achieve and maintain applicable water quality standards. Within its Coastal NPS Control Plans, a state must identify how it plans to control NPS within its coastal waters and ensure implementation of management measures through enforceable state polices and mechanisms, such as permit programs, zoning, bad actor laws, enforceable water quality standards, and general environmental laws, as well as economic incentives if they are backed by appropriate regulations. However, despite its legislative specificity and holistic approach to addressing coastal water

68. 16 U.S.C. § 1455b(a). This section is also referred to by scholars and the EPA as section 6217 of the 1990 Coastal Zone Act Reauthorization Amendments (CZARA).
69. P ERCIVAL ET AL., supra note 14, at 705.
71. Id. § 1455b(b)(3).
quality issues, a seasoned critic observed that appropriated funding for this program vastly underestimated the costs of adopting NPS control measures,\(^73\) and as with previous federal NPS planning initiatives, a legislative ‘stick’ for addressing non-compliance by states with section 1455b’s nonpoint source planning and implementation requirements is, once again, lacking.\(^74\)

4. Section 303 Pollutant Load Calculations and Planning Requirements

To achieve its statutory goals of restoring and maintaining the chemical, physical, and biological integrity of the Nation’s waters,\(^75\) the CWA authorizes the EPA to utilize several different approaches based on the severity of specific water quality impairment, including a technology-based approach,\(^76\) a multi-tiered effluent limitations approach,\(^77\) and finally if

\(^73\) See Pcrcival et al., supra note 14, at 705 (noting that EPA estimated the cost of adopting NPS control measures as recommended in guidance documents would range from $390 to $590 million, but only $50 million in grant money was made available to states through EPA and less than $2 million made available from NOAA).

\(^74\) While 16 U.S.C. § 1455b(c) requires review, approval, and implementation of state plans developed pursuant to the Coastal Nonpoint Pollution Control Program, penalties included therein for failure for a coastal State to submit an approvable plan included only the withholding of coastal management assistance grants otherwise available under section 306 of the CZMA and withholding of water pollution control assistance grants available under 33 U.S.C. § 1329, or section 319 of the CWA. 16 U.S.C. § 1455b(c) (2006).


\(^77\) See Id. §§ 1311, 1312 (imposing multi-tiered effluent limitations on existing sources whose stringency and timing depends on the nature of the pollutant discharged and whether the outfall is directed to a water body or a publicly owned treatment works (POTW) and providing the EPA with discretion to establish effluent limitations in a specific portion of navigable waters where minimum state water quality requirements have not been attained); see also Pcrcival et al., supra note 14, at 594 (summarizing the structure of the Clean Water Act regarding multi-tiered effluent limitation). Furthermore, 33 U.S.C. § 1311(b)(1)(C) specifically provides that water quality-based effluent limitations are required to “implement any applicable water quality standard established pursuant to this chapter.” (emphasis added). Finally, in recent case law binding on Vermont, the Second Circuit in Waterkeeper Alliance, Inc. v. EPA found that:

[W]here effluent limitations prove insufficient to attain or maintain certain water quality standards, the Act requires NPDES permits to include additional water quality based effluent limitations. See 33 U.S.C. §§ 1311(b)(1)(A)-(C), 1312(a).

Overall, we hope to make clear that the NPDES permit is critical to the successful implementation of the Act because—by setting forth technology-based effluent limitations and, in certain cases, additional water quality based effluent limitations—the NPDES permit ‘defines, and facilitates compliance with, and enforcement of, a preponderance of a discharger’s obligations under the [Act].’ Waterkeeper Alliance, Inc. v. EPA, 399 F.3d 486, 492 (2d Cir. 2005) (quoting EPA v. California ex rel. State Water Res. Control Bd., 426 U.S. 200, 205 (1976)).
these approaches fail to achieve applicable state water quality standards—the TMDL process. The TMDL process, as outlined in section 303(d) of the CWA, calls for the identification of waters where technology-based performance standards and effluent limitations have failed to achieve applicable water quality standards and, for these impaired waters, the calculation of a TMDLs from both point and nonpoint sources.\(^{78}\) Originally “[e]clipsed by [the] more [immediately] action-forcing provisions of the Act, § 303(d)” remained dormant for about twenty years after the passage of the CWA of 1972.\(^{79}\) However, this important section was resurrected from its legislative obscurity in the early 1990s, when citizen plaintiffs began to file suits against the EPA on the pace of states’ development and EPA approval of statutorily required TMDLs.\(^{80}\) In twenty-seven of the thirty-nine cases related to progress of TMDL development, courts ordered the EPA, or it agreed through consent decrees, to establish TMDLs if states failed to do so within a defined time period.\(^{81}\) As of March 2009, the EPA had outstanding obligations in sixteen cases and fulfilled its obligations in eleven cases; however, most orders/decrees allow the EPA to forego establishing a TMDL if it can demonstrate that the TMDL is not needed.\(^{82}\)

In general, where the EPA has continued TMDL obligations, it must “backstop” TMDL development for impaired waters listed under section 303(d) if a state has not completed them by a defined date. Many orders/decrees identify 2010 through 2013 as the backstop, or the EPA’s TMDL development takeover, date.\(^{83}\)

Specifically, section 303(d) of the CWA requires states to identify waters for which the effluent limitations required under section 301(b)(1)(A) and (b)(1)(B) of the CWA have not proven strict enough to meet applicable state water quality standards; establish a priority ranking

\(^{78}\) 33 U.S.C. § 1313(d).

\(^{79}\) HOUCK, supra note 15, at 3.

\(^{80}\) Following the resolution of Scott v. City of Hammond, 741 F.2d 992 (7th Cir. 1984), discussed infra, in which the court found that the EPA had a mandatory duty to establish TMDLs when states failed to do so, plaintiffs have filed TMDL lawsuits against the EPA in thirty-five states. Litigation Status: Summary of Litigation on Pace of TMDL Establishment, U.S. ENVTL. PROTECTION AGENCY (Mar. 2009), http://water.epa.gov/lawsregs/lawsguidance/cwa/tmdl/lawsuit.cfm [hereinafter Litigation Status]; see also HOUCK, supra note 15, at 75–76 (discussing lawsuits that resulted from the EPA’s failure to respond to state inaction in TMDL development).

\(^{81}\) Litigation Status, supra note 80.

\(^{82}\) HOUCK, supra note 15, at 76.

\(^{83}\) See Litigation Status, supra note 80, for the ‘TMDL Litigation by State’ chart for EPA’s outstanding state-specific obligations. This author respectfully observes that the prospect of impending EPA ‘backstop’/TMDL-takeover deadlines may provide the EPA with incentives to find that TMDLs are in fact not required for waters previously identified as impaired or to reduce the level of administrative scrutiny given to state-submitted TMDLs.
that accounts for the severity of continued pollution and designated water uses; and calculate a TMDL for pollutants identified by the EPA under section 304(a)(2). By terms included in the CWA and its implementing regulations, the TMDL for an impaired waterway must be established “at a level necessary to implement the applicable water quality standards with seasonal variations and a margin of safety which takes into account any lack of knowledge concerning the relationship between effluent limitations and water quality.”

Finally, CWA section 303(e) requires each state have a “continuing planning process” approved by the EPA which results in plans for all navigable in-state waters, including calculating TMDLs for pollutants in impaired waters in accordance with section 303(d).

The EPA’s regulations require states to develop water quality management plans, including those produced in accordance with sections 208 and 303(e), and draw upon water quality assessments to identify priority point and nonpoint water quality problems, including TMDL studies and calculations as required under section 303(d). These water quality management plans must describe the regulatory and non-regulatory programs, activities, and BMPs selected by states to control NPS pollution where needed to protect or achieve designated water uses for waterways classified as impaired under section 303(d). However, these regulations allow states to consider economic, institutional, and technical factors in their CWA-required “continuing planning process” when identifying control needs, taking into account pollution stemming from agricultural and silvicultural activities, as well as permitting the modification BMPs necessary to achieve water quality goals. Finally, the EPA’s regulations require state plans to identify measures necessary to carry out water quality plans, including financing, a time period for plan execution, and an assessment of economic, social, and environmental effects of implementation.

85. Id. § 1313(d)(1)(C); see also 40 C.F.R. § 130.7 (2009) (including agency regulations for the process states must use in identifying impaired waters requiring wasteload allocation, load allocation, and TMDLs, including the evaluation of waters identified as impaired or threatened in a CWA section 319 nonpoint assessment).
86. 33 U.S.C. § 1313(e)(1)–(3); 40 C.F.R. § 130.5, which requires that states implement processes specified in their “continuing planning process,” as required under CWA section 303(e)(3), and include in these processes for the development TMDLs in accordance with CWA section 303(d) and 40 C.F.R. § 130.7.
87. 40 C.F.R. § 130.6.
88. Id. § 130.6(c)(4)(i).
89. Id.; 33 U.S.C. § 1313(e)(1)–(3);
90. 40 C.F.R. § 130.6(c)(6).
Unlike other planning-related requirements included in sections 208 and 319 of the CWA, the result of non-compliance for states with section 303(d) requirements is not merely withholding of federal water quality improvement funds. Rather, courts have repeatedly held that the EPA has a statutory duty to establish TMDLs if states fail to complete their impaired waterway inventory, planning, and assessment obligations under section 303 of the CWA,91 that the EPA can only approve TMDLs which calculate loads on a daily, not seasonal or annual, basis,92 and that the EPA cannot issue NPDES permits to regulated point sources discharging into waters listed on a state’s 303(d) list without meeting applicable regulatory requirements for bringing these waters into compliance with state water quality standards.93 Finally, as defined by the EPA, a TMDL is “a calculation of the maximum amount of a pollutant that a water body can receive and still safely meet water quality standards,” and an allocation of that amount among the pollutant’s sources.94 This allocation addresses water pollution from both point and nonpoint sources.95 The EPA identifies pollution attributable to point sources (e.g., wastewater treatment plants,

91. See Scott v. City of Hammond, 741 F.2d 992, 996–98 (7th Cir. 1984) (finding that “if a state, fails over a long period of time to submit proposed TMDLs, this prolonged failure may amount to the ‘constructive submission’ by that state of no TMDLs” and that “the CWA should be liberally construed to achieve its objectives—in this case to impose a duty on the EPA to establish TMDL’s [sic] when the states have defaulted by refusal to act over a long period”); Sierra Club v. Hankinson, 939 F. Supp. 865, 868 (N.D. Ga. 1996) (citing City of Hammond, 741 F.2d 992, to find that the EPA had a mandatory duty to approve or disapprove of constructive submissions by a state of its Water Quality Limited Segment (WQLS) list and TMDLs as required under the CWA and, upon disapproval, to promulgate its own WQLS list or TMDL determinations for the state); S.F. Bay Keepers v. Whitman, 297 F.3d 877, 884, 85 (9th Cir. 2002) (holding that “EPA’s duty under the CWA to establish TMDLs for . . . California has not been triggered either through the constructive submission theory or actual 303(d) submissions that did not list TMDLs,” as there was nothing in the statute that requires the WQLS list and TMDLs to be submitted simultaneously, or that a “submission will be incomplete unless it contains both a WQLS and a corresponding TMDL”).

92. Friends of the Earth, Inc. v. EPA, 446 F.3d 140, 144–45 (D.C. Cir. 2006) (holding that the CWA unambiguously requires under the plain language of section 303(d) the calculation of daily loading for waters failing to achieve applicable water quality standards, and thus the EPA cannot approve TMDL submissions which calculate only seasonal or annual loads for these waters).

93. Friends of Pinto Creek v. EPA, 504 F.3d 1007, 1009, 1015 (9th Cir. 2007) (holding that the EPA could not issue a NPDES permit for a Carlota Copper Mine’s mining-related discharges into Pinto Creek, which were already in excess of water quality standards for copper and on Arizona’s list of impaired waters under CWA section 303(d), where there were no plans or compliance schedules in place to bring the creek into compliance with applicable state water quality standards, as required by 40 C.F.R. § 122.4 (2009)).


95. Id.
discrete stormwater discharges, and CAFOs) as the Wasteload Allocation, and remaining pollution attributable to nonpoint sources (e.g., agricultural, silvicultural, and urban runoff), as part of the Load Allocation. TMDLs must also include a “margin of safety” for the “uncertainty in predicting how well pollutant reductions will result in meeting water quality standards.” Of the 40,042 waters listed by states as impaired on their collective 303(d) lists, the EPA approved a total of 40,988 TMDLs by the end of its 2009 Fiscal Year.

In summary, a TMDL calculates the maximum amount of a given pollutant that is legally allowed to enter a waterbody (e.g., river, stream, lake, sound, bay) so that it will meet water quality standards for that particular pollutant. Specifically, the TMDL calculation adds the pollution load attributable to the existing Wasteload Allocation and Load Allocation, and adds in a margin of safety to account for uncertainty and variation. While state and federal officials have only recently begun in earnest to implement the congressional mandate of section 303 of the CWA, the TMDL process is an important step in “integrating point and nonpoint source regulations into a watershed-based approach.” While the CWA and its implementation over the last thirty plus years has helped to improve the quality of our Nation’s waters, it has focused primarily on addressing point sources and relied mostly on technological standards to abate this

96. *Id.* Point sources include all sources subject to regulation under the NPDES program, as required under 33 U.S.C. § 1341(a) (2006). *Id.* “Point source” is defined in 33 U.S.C. § 1362(14) to mean “any discernible, confined and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, [or] concentrated animal feeding operation, . . . from which pollutants are or may be discharged.” 33 U.S.C. § 1362(14) (2006). However, this statutory definition also states that, “[t]his term does not include agricultural stormwater discharges and return flows from irrigated agriculture.” *Id.*

97. *Overview of Impaired Waters*, supra note 94.

98. *Id.*; JOEL M. GROSS & LYNN DODGE, CLEAN WATER ACT 54 (2005).

99. *National Summary of Impaired Waters and TMDL Information*, U.S. ENVTL. PROTECTION AGENCY, http://iaspub.epa.gov/waters10/attains_nation_CY.control?p_report_type=T (last updated Nov. 13, 2010) (showing charts of “Impaired Waters Listed by State” and “National Cumulative Numbers of TMDLs”). Note that the EPA’s fiscal year starts October 1. *Id.* While the EPA approved about 4,000 TMDLs annually in fiscal years 2005 through 2007, in fiscal year 2008 it approved a record 9,247. *Id.* In fiscal year 2009, EPA approved 4,398 TMDLs, on average with the number approved annually in the early 2000s. *Id.*


101. GROSS & DODGE, supra note 98; Professor David Mears, Watershed Management (Apr. 4, 2009) (noting that the TMDL process makes sure the “whole thing [e.g. point and non-point sources] is wrapped together with a bow”).
pollution. Even after addressing key point source discharges, the ecological health of many waters, including the Lake, remains poor. Therefore it is time to focus on addressing water quality problems stemming from nonpoint sources, such as agricultural runoff. In the states’ implementation of TMDLs, new and innovative approaches, legislation, regulations, and community-based action are all necessary to address persistent water quality issues.

D. Addressing Nonpoint Source Pollution Through TMDLs

While many have debated that federal authority requires states to implement TMDLs under governing principles of federalism as discussed above, courts have held that the CWA unambiguously requires the establishment of TMDLs for waters failing to achieve applicable water quality standards; the EPA has a mandatory duty to develop TMDLs if states fail to do so; and the EPA cannot issue a NPDES permit for a point source discharge into waters listed under section 303(d) of the CWA where no plans or schedules to bring waters into compliance with water quality standards are in place, as required by EPA’s own regulations. Further, the Ninth Circuit has held that the EPA is authorized to require TMDLs for waters affected solely by nonpoint sources. However, beyond the successful completion of TMDLs as required under section 303(d), which primarily serve as “informational tools,” courts have consistently found that citizen plaintiffs cannot compel the EPA to implement TMDLs, or require states to develop and execute TMDL implementation plans.


104. Friends of the Earth, Inc. v. EPA, 446 F.3d 140, 144–45 (D.C. Cir. 2006).


106. Friends of Pinto Creek v. EPA, 504 F.3d 1007, 1009–15 (9th Cir. 2007).


108. Id. at 1129 (“TMDLs are primarily informational tools that allow the states to proceed from the identification of waters requiring additional planning to the required plans.” (citing Alaska Ctr. for the Env’t v. Browner, 20 F.3d 981, 984–85 (9th Cir. 1994))


addressing Load Allocations attributable to nonpoint sources. The limited application of section 303(d) to waters impaired by nonpoint sources, as well as limits on statutory authority under the CWA to require states implementation of approved TMDLs, or even the development of TMDL implementation plans, are discussed below.

1. Application of 303(d) to Nonpoint Sources

Since the first TMDL regulations it promulgated in 1985, the EPA has been committed to the view that TMDL calculations under section 303(d) must account for both point and nonpoint pollution. In its current regulations, the EPA requires that all states in the identification of impaired waters which require TMDLs must “assemble and evaluate all existing and readily available water quality-related data and information to develop the [303(d)] list,” including those “identified by the State as impaired or threatened in a nonpoint assessment . . . under section 319 . . . or in any updates of the assessment.”

As a practical matter, nonpoint sources comprise the majority of water pollution in every state. In Vermont, nonpoint sources account for at least seventy-one percent of the phosphorus entering the Lake. Professor Houck aptly notes that “[a]n interpretation of § 303(d) without nonpoint sources would be like an interpretation of Shakespeare without the plays, interesting poetry but not very important.” However, the inclusion of nonpoint sources in TMDLs has long served as a causa belli—cause for

109. See Sierra Club v. Meiburg, 296 F.3d 1021 (11th Cir. 2002) (holding that consent decree between parties did not require TMDL implementation); Amigos Bravos v. Green, 306 F. Supp. 2d 48, 56–58 (D.D.C. 2004) (holding that TMDL planning is not final agency action that citizen plaintiffs can challenge); City of Arcadia v. EPA, 265 F. Supp. 2d 1142, 1144 (N.D. Cal. 2003) (TMDLs set goals for states to achieve but do not require EPA implementation); Idaho Sportsmen’s Coal. v. Browner, 951 F. Supp. 962, 966 (W.D. Wash. 1996) (“TMDL development in itself does not reduce pollution . . . . TMDLs inform the design and implementation of pollution control measures.”).

110. But see Friends of Pinto Creek, 504 F.3d at 1009–15. If the holding of the Ninth Circuit in Pinto Creek is carried to its logical extension and the EPA regulations at issue in this recent case remain in force, the EPA itself or states implementing the CWA must deny the issuance of NPDES permits in waters impaired primarily by nonpoint sources if adequate plans or compliance schedules are not in place to bring the impaired waters into compliance with applicable state water quality standards.

111. HOUCK, supra note 15, at 198.

112. 40 C.F.R. § 130.7(b)(5) (2009).

113. HOUCK, supra note 15, at 198; PROTECTING WATER QUALITY FROM AGRICULTURAL RUNOFF, supra note 103.


115. HOUCK, supra note 15, at 198.
war—by the agriculture and timber industries, which have unsuccessfully attempted to limit the applicability of TMDLs to only waters impaired by point sources. As Houck observes, the EPA’s inclusion of NPS impairment in its TMDL regulations for over twenty years and the fact that the key inclusion of NPS pollution clearly furthers the clean water restoration goal of the CWA “should allow the Agency’s interpretation to survive judicial review under *Chevron* principles before even the most hostile court.”

To date, aggrieved parties have lost the legal battle to limit TMDL requirements under section 303(d) to only those waters impaired by point sources. In *Pronsolino v. Nastri*, the Ninth Circuit held that the EPA was authorized to determine a TMDL for the Garcia River (even though it was polluted only by logging runoff and other nonpoint sources) after California failed to establish a TMDL for this impaired instate waterway in a timely manner. The Court found that EPA’s interpretation of its TMDL rules, which did not distinguish between point and nonpoint pollution, as applicable to the Garcia River was at least entitled to substantial deference based on their persuasiveness under *Skidmore*. Congress had clearly entrusted it with responsibility of approving or disapproving section 303(d) lists submitted by states for TDML determinations, the agency had specialized expertise in interpreting the Act which the court lacked, and the EPA had consistently interpreted the provisions at issue. Furthermore, in *Pronsolino*, the Court found that the EPA’s use of its federal authority to determine the Garcia River TMDL did not violate the balance of federal and state authority as established by the CWA or intrude upon the state’s traditional role in land use controls, as the EPA had left the ultimate decision of if and how to implement the Garcia River TMDL up to California. The Court noted that the EPA recognized that implementation and monitoring were state responsibilities, and for this reason had expressly not included implementation or monitoring plans within the TMDL it had

116. Id. (footnote omitted); see also United States v. Mead, 533 U.S. 218, 226–27 (2001) (citing *Chevron*, U.S.A., Inc. v. Natural Res. Def. Council, Inc., 467 U.S. 837 (1984)) (finding that an agency’s statutory interpretation is entitled to deference if “Congress delegated authority to the agency generally to make rules carrying the force of law, and . . . the agency interpretation claiming deference was promulgated in the [reasonable] exercise of that authority”).


118. Id. at 1134–35 (citing United States v. Mead Corp., 533 U.S. 218, 227–28 (2001)) (“In the end, though, it does not much matter in this case whether we review the EPA’s position through the *Chevron* or *Skidmore/Mead* prism. Under both the more and less rigorous versions of the judicial review standard, the Agency’s position is . . . more than sufficiently supported by the statutory materials.”).

119. Id. at 1134.

120. Id.
prepared for the Garcia River. The division of federal-state authority identified by the Ninth Circuit in Pronsolino echoes Nixon's “New Federalism” doctrine, as discussed above in Part I.B, as well as the legislative goals of section 101(b) of the CWA.

More recently, in Barnum Timber, the plaintiff timber company challenged the EPA's approval of California's 2006 section 303(d) list of impaired waters under the CWA, claiming that the EPA's decision to retain Redwood Creek for temperature and sedimentation impairments was arbitrary and capricious. Barnum Timber owns property along the creek, located near Eureka. In the complaint, Barnum alleged that as a result of the EPA's decision to allow retention of this creek on California's section 303(d) List, Barnum had suffered from additional operational and management costs necessary to satisfy state-imposed land use regulations, including watercourse protection zones and timber harvest restrictions. Barnum also alleged that its property value had decreased as a result of Redwood Creek's TMDL designation. Looking to precedent established by Pronsolino regarding the division of state and federal authority over TMDLs, the district court found that “EPA's challenged Section 303(d) decision, alone, imposes no restrictions or obligations on plaintiff or its land, but instead merely feeds into further planning steps under the Clean Water Act which may-or may not-lead to regulation of plaintiff's land.” The court found that Barnum failed to establish that its alleged injuries, which arose from state forestry regulations, were caused by or connected to the EPA's 2006 approval of California's listing of Redwood Creek. Thus, the court granted EPA's motion to dismiss on the grounds that plaintiff lacked standing to challenge the EPA's approval. In December of 2008, the court denied the plaintiff's motion for leave to amend its complaint and entered final judgment for the EPA. Represented by the Pacific Legal Foundation (PLF), Barnum Timber appealed the district court's decision. According to PLF, appeal briefing and oral argument has been completed and it is awaiting decision before the Ninth Circuit.

121. Id.
123. Id. at *2, *5.
124. Id. at *4.
125. Id. at *5, *7.
126. Id. at *1.
However, in *American Wildlands v. Browner*, the Tenth Circuit held that the EPA’s approval was not arbitrary or capricious and that its interpretation of the CWA implicit in its approval of those standards (e.g., the Act does not grant the EPA authority to regulate nonpoint sources of pollution, and therefore, it is powerless to disapprove state anti-degradation review policies on the basis of how those policies deal with NPS pollution) was permissible. In *American Wildlands*, the Tenth Circuit agreed with the district court’s holding that nothing in the CWA demands that a state adopt a regulatory system for nonpoint sources. The Court further stated that, “In the Act, Congress has chosen not to give the EPA the authority to regulate nonpoint source pollution.” Finally, the Circuit Court found that, “Because the Act nowhere gives the EPA the authority to regulate nonpoint source discharges, the EPA’s determination—that Montana’s water quality standards exempting nonpoint source discharges from anti-degradation review are consistent with the Act—is a permissible construction of the Act.” In sum, courts reviewing issues related to the NPS pollution control under the CWA have held that while the EPA can require the calculation of a TMDL for waters impaired solely by nonpoint source runoff, and landowners subject to state-based land use and management restrictions must establish causation before challenging EPA’s approval of a state’s section 303(d) list, the EPA is not required (and likely was not delegated authority) under the CWA to approve or disapprove state water quality regulations or policies directly addressing NPS pollution.

128. Am. Wildlands v. Browner, 260 F.3d 1192, 1192 (10th Cir. 2001) (challenging the EPA’s approval under the CWA of Montana’s water quality standards that provided a statutory exemption from anti-degradation review of nonpoint sources of pollution).
129. Id. at 1198–99.
130. Id. at 1197.
131. Id. at 1199.
132. Id. at 1197 (citing Kennecott Cooper v. EPA, 612 F.2d 1232, 1243 (10th Cir. 1979) (holding that the EPA lacks authority to regulate nonpoint sources of pollution); Appalachian Power v. Train, 545 F.2d 1351, 1373 (4th Cir. 1976) (stating that, “Congress consciously distinguished between point source and nonpoint source discharges, giving EPA authority under the [Clean Water] Act to regulate only the former”).
133. Am. Wildlands, 260 F.3d at 1192.
134. See Pronsolino v. Nasti, 291 F.3d 1123, 1135–41 (9th Cir. 2002) (referencing other courts’ discussions whether the EPA can require the calculation of a TMDL for waters impaired solely by nonpoint source runoff).
135. See Barnum Timber Co. v. EPA, No. C 08-01988 WHA, 2008 WL 4447690, at *7 (N.D. Cal. Sept. 29, 2008) (finding that plaintiffs did not properly establish causation and therefore did not have standing).
136. See Am. Wildlands, 260 F.3d at 1197 (finding that the EPA does not have delegated authority to regulate nonpoint source pollution).
2. Federal Authority to Require TMDL Implementation

While courts have consistently held that the EPA has a mandatory duty under the CWA to develop TMDLs if the states fail to do so, and the EPA is authorized to require and approve TMDLs for waters affected solely by nonpoint sources, beyond the successful completion of TMDLs as required under section 303(d) of the CWA, courts to date have held that the EPA cannot be compelled by citizen suits to implement these completed TMDLs or require states to develop and execute implementation plans addressing Load Allocations attributable to nonpoint sources. Specifically, the Eleventh Circuit in Sierra Club v. Meiburg found that the district court had abused its discretion when it modified the terms of a consent decree to require that the EPA develop TMDL implementation plans on behalf of Georgia.

The TMDL dispute underlying the court’s 2002 decision in Meiburg entailed a long history of related litigation dating back to the early 1990s. The Sierra Club had previously sued the EPA in Sierra Club v. Hankinson where it asked the district court to require the EPA to establish and implement TMDLs because Georgia had not done so. In 1994, the district court in Hankinson entered summary judgment for the Sierra Club, and issued an injunction requiring the EPA establish and implement TMDLs for all Georgia’s water quality limited segments. The EPA appealed this decision, but pending appeal, parties agreed to a consent decree that was entered by the district court in 1997. Under this decree, EPA would establish TMDLs if Georgia continued to fail to do so, and all TMDLs were to be completed by 2004. In 2000, dissatisfied with the progress toward

137. See S.F. Bay Keepers v. Whitman, 297 F.3d 877, 881 (9th Cir. 2002) (ruling that a state’s failure to submit TMDLs will trigger the EPA’s nondiscretionary duty to act); Scott v. City of Hammond, 741 F.2d 992, 997 (7th Cir. 1984) (stating that if the EPA disapproves a state’s TMDL program the EPA must set its own TMDLs); Sierra Club v. Hankinson, 939 F. Supp. 865, 868, 871 (N.D. Ga. 1996) (requiring EPA to step in when states fail to fulfill their duties under CWA).

138. Pronsolino, 291 F.3d at 1141.

139. See id. at 1123 (providing that TMDLs are information tools that do not require implementation or enforcement); Amigos Bravos v. Green, 306 F. Supp. 2d 48, 56–58 (D.D.C. 2004) (concluding that “TMDL procedure . . . is not subject to challenge under the APA”); City of Arcadia v. EPA, 265 F. Supp. 2d 1142, 1144 (N.D. Cal. 2003) (“A TMDL does not, by itself, prohibit any conduct or require any actions.”).

140. Sierra Club v. Meiburg, 296 F.3d 1021, 1034 (11th Cir. 2002).


142. Id. at 872.

143. See Meiburg, 296 F.3d at 1027 (reviewing procedural history including Hankinson, 939 F. Supp. 865).

144. Id.

145. Id.
cleaner waters in Georgia and the extent of the EPA’s related actions, the Sierra Club requested the district court re-open the 1997 consent decree and compel the EPA to prepare implementation plans for TMDLs. The EPA responded that the 1997 decree did not obligate the Agency to prepare or execute implementation plans for TMDLs. In its review, the district court found that the consent decree did require the EPA to develop implementation plans as well as to ensure that all Georgia-prepared plans were adequate. However, on appeal the Eleventh Circuit in *Meiburg* found that the lower court’s interpretation modified the terms of the consent decree, and that this modification was an abuse of discretion.

In *Meiburg*, the Eleventh Circuit observed that “The Act generally leaves regulation of non-point source discharges through the implementation of TMDLs to the states,” and “Georgia has the primary authority and responsibility for issuing permits and controlling nonpoint source pollution in that state,” while the “EPA, for its part, has supervisory authority over various reports and plans which the state is required by the Act to produce.” The court found the objective of the consent decree was to establish TMDLs, and that consistent with the CWA, it left “attainment of the Act’s ultimate goal of cleaning up the water to the statutory and regulatory scheme which requires compliance by Georgia subject to some oversight by EPA.” The court further held that in the consent decree, “EPA agreed only to a supervisory role with respect to some of these implementation-related processes, but it did not agree to take over the implementation process.” Therefore, the consent decree was “still capable of and in fact accomplishing what the parties set out to achieve with the decree: the establishment of TMDLs.” And thus, the lower court erred in modifying the decree in the course of interpreting its provisions.

Other recent TMDL-related cases have followed the lead of the Eleventh Circuit in *Meiburg*. In 2003, the U.S. District Court for the Northern District of California in *City of Arcadia v. EPA* (where affected cities challenged the EPA’s promulgation of a TMDL for trash and subsequent approval of state’s trash TMDLs) stated that, “TMDLs established under Section 303(d)(1) of the CWA function primarily as
planning devices and are not self-executing.” The court in City of Arcadia further found, citing Meiburg, that a “TMDL does not, by itself, prohibit any conduct or require any actions. Instead, each TMDL represents a goal that may be implemented by adjusting pollutant discharge requirements in individual NPDES permits or establishing nonpoint source controls.” In 2004, the U.S. District Court for the District of Columbia in Amigos Bravos v. Green cited both Meiburg and City of Arcadia in support of its distinction between EPA’s approval of TMDLs submitted by New Mexico from its alleged arbitrary approval of the state’s TMDL implementation plan included therein. The Amigos Bravos court found that EPA’s correspondence regarding New Mexico’s TMDLs in no way approved or disapproved of the state’s implementation plan; thus, there was no reviewable final agency action concerning the plan, and the court lacked jurisdiction under the APA to review plaintiff’s challenge. The court concluded that, “Furthermore, there is no statutory language requiring submission to or approval of a State’s implementation plan by the EPA; rather, the statute only requires that the EPA approve or disapprove a State’s TMDL.” In sum, federal courts to date have found, at best, a very limited role for the EPA, beyond development, review, and approval of TMDLs calculations, in the implementation of TMDLs and regulation of nonpoint source pollution.

154. See City of Arcadia v. EPA, 265 F. Supp. 2d 1142, 1144 (N.D. Cal. 2003) (“TMDLs are primarily informational tools that allow the states to proceed from the identification of waters requiring additional planning to the required plans.” (citing Pronsolino v. Nastri, 291 F.3d 1123, 1129 (9th Cir. 2002))).

155. Id. at 1144–45 (citing Meiburg, 296 F.3d at 1025; Idaho Sportsmen’s Coal. v. Browner, 951 F. Supp. 962, 966 (W.D. Wash. 1996)).


157. Id. at 57.

158. Id. at 58.

159. But see The Two Lost Books in the Water Quality Trilogy, supra note 14, at 43 n.73 (“In Pronsolino the court intimated in dictum that those aspects of TMDLs that cannot be effectuated with point source discharge limitations must be addressed in the comprehensive planning provisions of section 303(e) (citations omitted). I and others have argued, however, that under 303(d), EPA has the authority to implement as well as promulgate TMDLs.” (citing Integrated Approaches to Water Pollution, supra note 14, at 290 n.504)); Jory Ruggiero, Toward a Law of the Land: The Clean Water Act as a Federal Mandate for the Implementation of an Ecosystem Approach to Land Management, 20 PUB. LAND & RESOURCES L. REV. 31, 54 (1999) (“Congress’ intent that TMDLs actually be implemented to improve water quality is clear. Once adequate TMDLs have been drafted, it should be possible to use the law to compel states and the EPA to implement TMDLS in ways that actually bring [Water Quality Limited Segments] into compliance with [Water Quality Standards].”).
3. The Success (or Failure) of New Federalism in Improving Water Quality

Many legal scholars have analyzed the successes and failures of the CWA and the new federalism approach it embraced to achieve its stated goals as well as the role TMDLs have played since the 1990s in prodding forward both federal and state assessments of unregulated nonpoint sources, which are largely responsible for continued water quality impairments.\(^{160}\) Notably, in his 2003 review of the CWA as it turned thirty, Professor Adler observed that

Of course, the federalism policy of the CWA alone does not explain why large numbers of aquatic ecosystems remain physically and biologically impaired, and appear to be declining further, three decades after the 1972 CWA. It is also necessary to conclude that Congress’s experiment of deferring largely to the states to address broader issues of pollution has failed because the states have failed to get the job done absent a stronger federal presence. Indeed, the very contrast between the degree of progress made in controlling discharges from point sources over the past thirty years, compared to the relative lack of success in controlling other forms of pollution, is evidence of the potential merits of a stronger federal-state partnership in the area of water pollution control more generally. If so, it is time for Congress to revisit the allocation of power between EPA and the states with respect to nonpoint source pollution control programs specifically and comprehensive pollution control efforts more generally.\(^{161}\)

\(^{160}\) See generally The Two Lost Books in the Water Quality Trilogy, supra note 14, at 29 (discussing national water quality since enactment of the Clean Water Act); Flatt, supra note 65, at 603–04 (examining the deficiencies in the 1972 Clean Water Act); Jefferey M. Gaba, New Sources, New Growth and the Clean Water Act, 55 ALA. L. REV. 651, 652–53 (2004) (examining the federal implementation of TMDLs under the Clean Water Act); Jocelyn B. Garovoy, Note, “A Breathtaking Assertion of Power”? Not Quite. Prosolino v. Nastri and the Still Limited Role of Federal Regulation of Nonpoint Source Pollution, 30 ECOLOGY L.Q. 543, 548–50 (2003) (discussing the failure of the federal and state governments to adequately control nonpoint source pollution); Oliver A. Houck, TMDLs, Are We There Yet?: The Long Road Toward Water Quality-Based Regulation Under the Clean Water Act, 27 ENVTL. L. REP. 10,391, 10,401 (1997) [hereinafter TMDLs, Are We There Yet?] (describing the Clean Water Act as an experiment in cooperative federalism); Oliver A Houck, Clean Water Act Developments: 1999–2000, 107, 109 (2000) (noting that “TMDLs and water quality standards are where CWA 2000 is at” and that while TMDLs will be difficult, controversial and take a long time, “for the major and most intractable water pollution sources in this country—agribusiness, timber, grazing, construction, subdivisions and urban sprawl—they remain the only real game in town”).

\(^{161}\) The Two Lost Books in the Water Quality Trilogy, supra note 14, at 57–58.
In his analysis of the failure of the CWA to achieve the “overriding ecosystem integrity objective of the law” for “most aquatic ecosystems” Adler notes that “One possible explanation for this failure is that Congress simply failed to match its laudable rhetoric with adequate implementation tools and authority.”\(^162\) To achieve the unfulfilled goals of physical and biological integrity, he observes that, “In large part, this serious failure to meet the basic ecosystem integrity goal of the CWA may be attributed to Congress’s assignment to the states of the primary responsibility for controlling pollution from activities other than point source discharges of pollutants.”\(^163\)

On a similar note, in his 2004 article entitled \textit{Spare The Rod and Spoil the Child: Why the Clean Water Act has Never Grown Up}, Professor Flatt observed the Nation’s continued water pollution problems are mostly associated with nonpoint sources, which “tellingly has been one of the biggest failures in the CWA.”\(^164\) Flatt notes that while NPS sources are well understood and “the mechanism for controlling most of such pollution, i.e., land use controls, have long been recognized in the CWA itself,” the federal role here is “essentially one of advice and encouragement.”\(^165\) He finds that “there is no discipline in the CWA that ensures that this clean-up enforcement of non-point sources will or must occur,”\(^166\) and identifies the failure of adequate enforcement as the primary problem with the CWA. Flatt finds that, “This [failure of enforcement] is a problem from the top down and at all levels. Like an unruly child, the CWA needs constant vigilance . . . [and] without enforcement, the true goal of the CWA, . . . clean water, will not occur.”\(^167\) In summary, while viewed as largely successful in controlling point sources of water pollution,\(^168\) the predominance of agriculture, forestry, and urban development as continued sources of water quality impairment\(^169\) underscore the general failure of the

\(^{162}\) Id. at 60.

\(^{163}\) Id. at 75.

\(^{164}\) Flatt, supra note 65, at 597.

\(^{165}\) Id. at 597–98.

\(^{166}\) Id. at 598–99.

\(^{167}\) Id. at 599.

\(^{168}\) See \textit{The Two Lost Books in the Water Quality Trilogy}, supra note 14, at 48–49 (discussing the successes of CWA in controlling point sources of water pollution); Flatt, supra note 65, at 597–98 (recognizing that continuing pollution is largely associated with nonpoint source control rather than point source control); Oliver A. Houck, \textit{TMDLs: The Resurrection of Water Quality Standards-Based Regulation Under the Clean Water Act}, 27 ENVTL. L. REP. 10,329, 10,329–30 (1997) (recognizing that enforcement of technology-based limits on water quality has produced significant results).

\(^{169}\) See \textit{Basic Information}, U.S. ENVTL. PROTECTION AGENCY, http://www.epa.gov/owow_keep/NPS/whatis.html (last updated Feb. 10, 2010) (giving a basic definition of nonpoint source pollution and noting its prevalence and possible categories); \textit{NPS Categories}, U.S.
CWA and its amendments to effectively address and encourage the control of these NPS pollution through state-based regulations, particularly those related to land use.

II. VERMONT’S LAKE CHAMPLAIN TMDL AND AGRICULTURAL NONPOINT SOURCES

This section provides an overview of Vermont’s 2002 Phosphorus TMDL for Lake Champlain; evaluates Vermont’s efforts to implement the TMDL; identifies problems presented by instate agricultural nonpoint sources, which contribute significantly to the Lake’s water quality impairments; as well as reviews and evaluates Vermont’s current regulations and programs related to agricultural NPS control.

A. Background on Lake Champlain’s 2002 Phosphorus TMDL

The State of Vermont was required under section 303(d) of the CWA to prepare a TMDL for the Lake because phosphorus concentrations in many segments of the Lake have continued to exceed levels allowed under the Vermont Water Quality Standards since monitoring began in the early 1990s. Approved by the EPA in 2002, the Lake Champlain Phosphorus

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ENVTL. PROTECTION AGENCY, http://www.epa.gov/owow.keep/NPS/categories.html (last updated Feb. 10, 2010) (listing possible categories of nonpoint source pollution); Flatt, supra note 65, at 598 (attributing nonpoint source pollution to agriculture, silviculture, mining, and construction activities); TMDLs, Are We There Yet?, supra note 160, at 10,399 (“[N]onpoint source pollution has become the dominant water quality problem in the United States, dwarfing all other sources by volume and, in conventional contaminants, by far the leading cause of nonattainment for rivers, lakes, and estuaries alike. It is no secret to any observer of the Clean Water Act that the primary reason for this mushrooming problem is the fact that while other sources have been abated through required controls and their enforcement, no comparable controls or enforcement have been applied to agriculture, silviculture, and the rest of the nonpoint world.”).


171. Letter from Linda M. Murphy, Dir., Office of Ecosystem Prot., to Christopher Recchia, Comm’t, VT. Dep’t of Envtl. Conservation (Nov. 4, 2002), available at http://www.epa.gov/region1/eco/tmdl/pdfs/vt/lakechamplain.pdf. However, note the ongoing legal challenge by the Conservation Law Foundation (CLF) to the EPA’s approval of the 2002 TMDL for the Lake, specifically the Agency’s alleged failure to fulfill the requirements of the CWA and Administrative Procedure Act in reviewing and approving the TMDL submitted by Vermont’s Department of Environmental Conservation. See Complaint for Declaratory Judgment and Injunctive Relief at 8–15, Conservation Law Found. v. EPA, No. 2:08-CV-238 (D. Vt. filed Oct. 28, 2009) (bringing allegations against the Agency in its review and approval of the TMDL including insufficiently stringent Wasteload Allocations and lack of reasonable assurances, failure to require a Margin of Safety, failure to accurately account for Point Sources, and failure to account for the effects of climate change on existing and assumed future water quality and pollution loading issues). During the spring and summer of 2009, the
TMDL was jointly prepared and submitted to the EPA by the States of Vermont and New York, which along with the Province of Quebec, share this unique, as well as nationally and internationally significant 120-mile long waterbody. While surface area of Lake Champlain covers 435 square miles, its 8,234 square mile watershed/drainage basin encompasses almost half the land area of Vermont, as well as portions of northeastern New York and southern Quebec. For phosphorus management and assessment purposes, the Lake has been divided into thirteen segments, and total phosphorus concentrations vary widely among these segments. In 2000, the Vermont Department of Environmental Conservation (DEC) identified nine lake segments as “impaired” in its section 303(d) List of Impaired Surface Waters due to phosphorus pollution.

Phosphorus enters the Lake from many different point and nonpoint sources located in Vermont, New York and Quebec. The total phosphorus load from all sources was estimated at 647 metric tons per year (mt/yr) during the 1991 hydrologic base year, with point sources then accounting for about twenty-nine percent of the loading, and with the remaining seventy-one percent from nonpoint sources, which includes natural background and ‘cultural’ or human-induced loading. In 1999, a study then estimated that about fifty-six percent of the nonpoint source load into the Lake came from agricultural lands, about thirty-seven percent from urban or developed lands, and about seven percent from forestlands. Of

U.S. District Court for the District of Vermont granted several stipulated motions for extension of time for service filed by CLF based on an agreement between the parties that these extensions would be best to facilitate already-initiated good faith settlement negotiations. Stipulated Motion to Extend Time for Service of the Complaint at 1–2, Conservation Law Found. v. EPA, No. 2:08-CV-238 (D. Vt. filed Oct. 14, 2009). In late September 2009, the District Court granted an unopposed motion to intervene as a party defendant filed by the Vermont Agency of Natural Resources (ANR). In its Response to this belated Motion to Intervene, the EPA clarified that it had welcomed the ANR’s participation in ongoing settlement negotiations throughout 2009, but ANR declined. Response of the U.S. EPA to the Unopposed Motion of the Vt. ANR to Intervene as a Party Defendant at 2, Conservation Law Found. v. EPA, No. 2:08-CV-238 (D. Vt. filed Sept. 29, 2009). As part of its Order made on October 15, 2009, the Court granted CLF’s motion to extend time to serve ANR with a complaint to January 18, 2010 to facilitate settlement negotiations. Stipulated Motion to Extend Time for Service of the Complaint at 1–2, Conservation Law Found. v. EPA, No. 2:08-CV-238 (D. Vt. filed Oct. 14, 2009).

LAKE CHAMPLAIN PHOSPHOROUS TMDL, supra note 114, at 1.

LAKE CHAMPLAIN PHOSPHOROUS TMDL, supra note 114, at 1.

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the total load of 647 mt/yr of phosphorus entering the Lake during the 1991 base year from all sources, Vermont’s cultural nonpoint sources were estimated to account for about thirty percent of the total phosphorus loading (compared to about eight percent and nine percent respectively from cultural nonpoint sources in New York and Quebec). While the percentage of Vermont’s NPS loading from identified land use categories (e.g., forest, developed and agricultural lands) varies among lake segments, in 2000 agricultural lands were estimated to account for over eighty percent of the NPS load in the Northeast Arm, St. Albans Bay, and Missisquoi Bay lake segments. The approved TMDL requires an overall load reduction of 80 mt/yr (twenty-seven percent) from NPS in Vermont from estimated 1991 levels.

While not required under the CWA, the 2002 TMDL contains state-specific plans for both Vermont and New York, which include “some specific considerations for implement[ation].” Vermont’s 2002 implementation plan identifies the VT DEC’s ongoing river basin planning process (also called the Vermont Watershed Initiative, discussed at length in Part IV.B) as playing an important role in TMDL implementation and envisions resulting river basin plans to aid “on-the-ground collaborative efforts to restore and protect [water-related] resources” within the State’s seven major river watersheds that drain into the Lake. The 2002 implementation plan also identifies the need for a “sustained and enhanced commitment” to existing state and federal cost-share programs which “help farmers comply” with Vermont’s Accepted Agricultural Practices (AAPs) and install voluntary BMPs. Vermont established the Clean and Clear Program in 2003 and a related Center in 2007 to strengthen cooperation between the State’s Agency of Natural Resources (ANR, which includes the

178. LAKE CHAMPLAIN PHOSPHOROUS TMDL, supra note 114, at 5.
179. Id. at 34.
180. Id. at 36.
181. Id. at 48.
182. Id. at 48–49.
183. Id. at 90.
However as of 2008, long-term in-lake monitoring data showed that phosphorus levels were still too high in most parts of the Lake. The Northeast Arm, St. Albans Bay, and Missisquoi Bay lake segments have not met established targets in any of the last five years and phosphorus levels in these impaired segments are either increasing or showing no discernable trends. Furthermore, recent Lake monitoring data shows that primarily Vermont-based NPS loads “greatly exceed TMDL targets.” Factors attributed to Vermont’s high NPS load include the conversion of both agricultural and forest lands to developed land and the “inadequate implementation” of BMPs on farms and within developed areas. While pollution attributed to point sources—identified by the Lake Champlain Basin Program (LCBP, which has funded long-term monitoring of phosphorus and other water quality indicators since 1992) to include “mainly wastewater treatment plants,” and industrial discharges—has been dramatically reduced and is now estimated to contribute less than ten percent of the Lake’s total phosphorus load as of 2008, “runoff from non-point sources [specifically identified by LCBP to include, “runoff from impervious surfaces such as roads, rooftops and other developments, storm drains, fertilized lawns, eroded riverbanks, manure and other farm agricultural runoff”] contributes the remaining 90% of the [Lake’s] total phosphorus load.” In a fairly stern letter from the EPA’s Region 1 office


185. LCBP REPORT 2008, supra note 103, at 4; see also GREEN MOUNTAIN INST. FOR ENVTL. DEMOCRACY, PERFORMANCE AUDIT OF VERMONT CLEAN AND CLEAR, at vi (2008) (finding that “there have been no significant reductions in phosphorus loads to Lake Champlain from the sum of [Clean and Clear] programs although individual programs are responsible for some probable reductions”).


187. Id.

188. Id. at 7. “The LCBP was created by the federal Lake Champlain Special Designation Act of 1990.” Id. at i. The mission of the LCBP is to coordinate the implementation of the Lake’s management plan, and Program partners include the States of New York and Vermont, Province of Quebec, the U.S. EPA and other federal agencies, the New England Interstate Water Pollution Control Commission, and local government leaders, businesses, and citizen groups. Id. The Lake Champlain Steering Committee leads the LCBP, and its members include many of the Program’s partners, as well as chairpersons of its technical, cultural heritage and recreation, education, and citizen advisory committees. Primary funding for the LCBP comes from an EPA appropriation made under the CWA. Id. However, it is notable that the Lake’s point versus nonpoint source breakdown of ten percent and ninety percent respectively, as reported by the LCBP, is considered “pretty blurry” by some Vermont-based environmental advocate
in 2008 regarding Lake-related water quality issues, the Regional Director of the Office of Ecosystem Protection observed that while “loading from [wastewater treatment] plants, have been reduced, there appears to be not enough progress in reducing the loads from other sources, such as agricultural nonpoint sources and urban stormwater runoff.” Further, the EPA concurred with the DEC assessment, “expressed at [a March 2008] meeting, that restoring Lake Champlain will not be possible without successfully addressing agricultural and urbanized nonpoint sources of phosphorus.” Finally, Region 1 highlighted its continued concern regarding the “lack of progress toward seeing water quality improvements in most lake segments, as well as the large measured tributary loads entering the lake even after almost six years of TMDL implementation.”

Responding to concerns associated with the continued impairment of the Lake’s water quality by phosphorus, Vermont’s General Assembly passed Act No. 130, entitled “The Cleanup of Lake Champlain and Other State Waters,” which became effective in May 2008. This Act as related
to the Lake, codified at title 10, section 1386, requires the ANR to amend the implementation plan for the Vermont-specific portion of the Lake TMDL by January 15, 2010. The Act also requires that the plan include “a comprehensive strategy for implementing the Lake Champlain [TMDL] plan and for the remediation of Lake Champlain.” Specifically, this legislation states that, among other elements, the implementation plan shall “manage discharges to Lake Champlain consistent with the federal Clean Water Act,” “develop a process for identifying critical source areas for [NPS] pollution in each subwatershed [e.g., river basin],” and “develop site-specific plans to reduce both point source and nonpoint source load discharges in critical source areas.” The Act further finds that beginning January 13, 2013, the ANR must update and amend the Lake’s revised TMDL implementation plan after consulting with the AAFM, all interested state environmental and business organizations, the Vermont League of Cities and Towns, the University of Vermont Rubenstein Ecosystem Science Lab, and other interested parties, as well as reporting to the General Assembly and holding at least three public hearings regarding proposed plan amendments. Finally, Act 130 specifies that beginning in February of 2009, the ANR must submit a summary to the General Assembly reporting on activities and progress for all programs supported by the state’s Clean and Clear Program.

In December 2009, the state’s Clean and Clear Program released its revised draft of the Lake’s 2002 TMDL implementation plan for a two-week public review and comment period. Based on public input provided by “a broad-based group of stakeholders” during the summer of 2009, the ANR identified thirteen key threats to the Lake’s water quality, including: land conversion (e.g., from existing crop and/or forest lands to developed lands), discharges from farms and agricultural production areas, as well as poorly managed cropland. Further, involved stakeholders, as well as state and federal agency staff, ranked these three threats among the top five

193. Id.
194. Id.
195. Id.; id. § 1386(a)(3) (defining “critical source area” as “an area in a watershed with high potential for the release, discharge, or runoff of phosphorus to the waters of the state”).
196. Id. § 1386(c).
197. Id. § 1386(d).
threats to the Lake’s water quality. In its revised implementation plan, the ANR included strategies to address identified threats to the Lake’s water quality, separating them into current actions, next steps (to be taken, budget permitting, between 2010 and 2016), and future measures (that may or may not be necessary, at some future point in time, beyond 2016). The ANR proposes the implementation of identified strategies using three policy tools, including expanded regulatory requirements, financial incentives and technical assistance. However, in the “Next Ten Steps” included within its Executive Summary, as well as the revised Implementation Plan—the ANR primarily focuses on providing financial incentives, as well as increasing technical assistance, to support farmers in their voluntary efforts to decrease agricultural land use and management contributing to NPS pollution.

While briefly identifying the need to more clearly link watershed/basin/river corridor plans to land use plans as a current action, the Plan does not set forth a clear vision, goal or objective on how to more effectively integrate agricultural land use and management into the framework of existing or modified statewide or local planning and regulatory efforts aimed to address impaired water quality.

Finally, with a price tag of $500-800 million (in 2009 dollars) as the total cost of implementing strategies in the revised Implementation Plan (most of which include providing financial incentives for affected landowners), and given the State’s well-known budget problems and likely future shortfalls, it remains highly uncertain whether many of the proposed strategies included in the revised 2010 TMDL Implementation Plan will in fact be implemented. Thus, while providing a detailed and seemingly “comprehensive strategy for implementing the Lake Champlain total maximum daily load plan and for the remediation of Lake Champlain,” as required of it by the Vermont General Assembly, the revised implementation plan does not go far enough (especially given its

200. Id. at 2.
202. EXECUTIVE SUMMARY, supra note 199, at 2.
203. Id. at 3.
204. REVISED IMPLEMENTATION PLAN: LAKE CHAMPLAIN TMDL, supra note 201, at 10.
205. EXECUTIVE SUMMARY, supra note 199, at 5; see also REVISED IMPLEMENTATION PLAN: LAKE CHAMPLAIN TMDL, supra note 201 (identifying sources to be allocated financial assistance in implementing the Clean & Clear Plan).
heavy reliance on voluntary financial incentives and cost-share programs that may not be funded), to reduce pollution stemming from unchecked agricultural nonpoint sources that continue to impair water quality. In conclusion, the recently revised Implementation Plan for the Lake Champlain TMDL, as developed by the State of Vermont’s Clean and Clear Program and ANR, does not propose to effectively utilize many available planning and regulatory mechanisms. These mechanisms could provide a process for increasing legally binding local/regional land use controls or mandatory state/watershed-based regulations for agricultural land use and management, particularly for the State’s smaller farming operations, which are discussed below.

B. Existing State Water Quality Laws and Regulations

Vermont’s existing legislation related to water quality is primarily included in Titles 6 and 10 of the Vermont Statutes Annotated (V.S.A.), which respectively encompass laws related to “Agriculture” and “Conservation and Development.” These statutes delegate authority to promulgate implementing rules to the Secretary of the AAFM, and the Secretary of the ANR. It also delegates authority to the Vermont Natural Resources Board (NRB) to adopt rules for water quality as necessary to achieve state water classifications. The General Policy of the rules adopted by the NRB, referred to as the “Vermont Water Quality Standards,” is to “achieve the goals of the Vermont Water Quality Policy . . . [included in 10 V.S.A § 1250], as well as the objective of the federal Clean Water Act (33 U.S.C. § 1251 et seq.) . . . ”

While not defined in the CWA, the Vermont Water Quality Standards define “Nonpoint source waste” to mean “waste that reaches waters in a diffuse manner from any source other than a point source including, but not limited to, overland runoff from construction sites, or as a result of agricultural or silvicultural practices.” Further, title 10, section 1259(a) of the Vermont statutes prohibits the discharge of “any waste [including NPS

207. See e.g., VT. STAT. ANN. tit. 6, §§ 4801–4951 (2009) (regarding agricultural water quality); VT. STAT. ANN. tit. 10, §§ 1250–1386 (regarding water pollution control).
208. VT. STAT. ANN. tit. 6, §§ 4802, 4810(a) (1998).
209. VT. STAT. ANN. tit. 10, § 1251a(a).
211. CODE OF VT. RULES § 1-02 at 12 004 052.
212. Id. § 1-01(B)(32) at 12 004 052.
waste], substance or material into waters of the state” without a permit for that discharge from the ANR Secretary, but provides a statutory exemption to the “proper application of fertilizer to fields and crops.”

This legislation also provides that the ANR Secretary, to the extent compatible with federal law, “shall delegate to the secretary of agriculture, food and markets the state agricultural non-point source pollution control program planning, implementation and regulation.”

The Vermont General Assembly found the management of stormwater runoff necessary to reduce pollution and the adverse effects of stormwater runoff, and therefore directed that the ANR Secretary’s stormwater management program “shall include, at a minimum provisions that: (1) Indicate that primary goals of the state program will be to assure compliance with the Vermont water quality standards,” and is consistent with the State’s 2002 stormwater management manual. However, related legislation provides a statutory exemption for stormwater “runoff from farms subject to accepted agricultural practices [AAPs]” adopted by the AAFM Secretary, and “runoff from silvicultural activities subject to accepted management practices adopted by the commissioner of forests, parks and recreation.”

Thus, the ANR Secretary has used his/her authority to adopt rules related to the review and issuance of permits for stormwater runoff from impervious surfaces, construction sites and industrial facilities, which are implemented by the DEC’s Water Quality Division. However, the AAFM is currently charged with promulgating regulations related to controlling NPS runoff from agricultural practices.

Further, the DEC’s Water Quality Division is also responsible for implementing the Vermont’s 2002 Wetland Rules, as adopted by the NRB under authority provided by title 10, section 905(7)–(9) of the Vermont statutes. These Rules protect the first two classes of wetlands (Class One and Class Two) as identified on the Vermont Significant Wetlands Inventory
and provide associated buffer zones (100-foot buffers for Class One and 50-foot buffers for Class Two wetlands).221 In general, wetlands help protect surface water quality, including waters ultimately flowing into the Lake, by retaining overland stormwater flows and filtering pollutants from this runoff.222 However, similar to the State’s water quality legislation, the 2010 Wetland Rules provide a regulatory exemption for areas used to grow food or crops in relation to farming activities or in ordinary rotation as of 1990.223 Further, many farming activities not exempted and thus subject to the Wetland Rules are permitted as an allowed use in most protected wetlands (if in compliance with the most recent AAPs), as well as many silvicultural activities (if in compliance with Accepted Management Practices as allowed under section 1259).224

Vermont’s AAPs are rules, promulgated by the Secretary of the AAFM under authority granted by title 6, section 4810(a), which adopt base-level management standards to be followed when any individual or corporation conducts any in-state agricultural activities.225 The AAPs adopt the broad definition of “farming” from title 10, section 6001, which includes the cultivation or other use of land for growing food or fiber, and the raising, feeding or management of livestock.226 First adopted in 1995, the AAPs were revised by the AAFM in 2006.227 Updated rules require vegetated buffers and limit manure application within ten feet of identified adjoining surface waters.228 As observed by the AAFM, “agriculture remains one of the most significant potential sources of nonpoint source pollution. Inadequate animal waste, soil and nutrient management results in nutrient loading to surface[s] . . . [and a] large fraction of [NPS] pollution is a result of cropland erosion.”229 However, the AAFM also finds that Vermont’s AAPs “are intended to reduce, not eliminate, pollutants associated with [NPS] such as sediments, nutrients and agricultural chemicals that can enter surface water, groundwater and State Significant wetlands that would


222. Id. § 5.2

223. Id. § 3.1. Note that this exemption expires when the area is no longer used for agricultural purposes.

224. Id. §§ 6.01, 6.06.

225. VT. STAT. ANN. tit. 6, § 4810(a) (2009).


228. See Accepted Agricultural Practice Regulations, VT. AGENCY OF AGRIC. (Apr. 24, 2006), www.vermontagriculture.com/ARMES/awq/AAPs.htm (stipulating specific requirements regarding vegetated buffers and limited manure application).

229. Id.
Implementation of AAPs creates a rebuttable presumption of compliance with Vermont Water Quality Standards and Vermont Wetland Rules. However, this presumption can be overcome by water quality data or results from a water quality study “deemed as conclusive by the Secretary of ANR.”

While the State’s AAPs include enforcement procedures for violations, by their own terms AAPs provide broad enforcement discretion to the AAFM, which it has historically used very sparingly. Procedurally, if the AAFM Secretary determines that a person engaged in farming is not managing his or her farm in a manner that is consistent with AAPs, then the Secretary “may” issue a written warning and following an opportunity for a hearing “may” serve a cease and desist order, assess administrative penalties, or commence other appropriate proceedings (including seeking a temporary or permanent injunction). However, while the AAFM reports that the number of AAFM actions related to AAPs has increased since 2003; over a five-year period the Agency issued five cease and desist orders and assessed fourteen administrative penalties (of which eight where issued in 2008). Further, the introduction to the AAPs describes a mechanism whereby the AAFM can follow through on enforcement activities in cooperation with the ANR. For most AAP violations, the AAFM is supposed to take the lead in ensuring compliance, whereas the ANR exercises its enforcement authority only when there are water quality violations defined as ‘discharges’ to surface waters (e.g., jurisdictional under the CWA, such as from a CAFO). However, statistics “on compliance and enforcement show that the frequency of [AAFM] enforcement actions that result in referral to ANR is small[,]” which underscores the State’s general lack of enforcement against CAFOs (or other farm operations that don’t qualify as CAFOs but have point source discharges).

In a somewhat more proactive step, the AAFM recently (in 2007) revised the rules for Large Farm Operations, which detail the individual permitting process required for farms that have more than 700 mature dairy cows (whether milking or dry); 1,000 beef cattle or cow/calf pairs; or

230. Id. (emphasis added).
231. Id.
232. Id.
233. Id.
234. V ERMONT CLEAN AND CLEAR ACTION PLAN ANNUAL REPORT 2008, supra note 184, at 14 fig.1.
235. See GREEN MOUNTAIN INST. FOR ENVTL. DEMOCRACY, supra note 185, at 89–90 (providing enforcement statistics as part of the Performance Audit for Vermont Clean and Clear as required by Section 6 of Act 43 of the 2007 session of the Vermont Legislature).
82,000 laying hens (without a liquid manure handling system).\textsuperscript{236} In 2008, this permitting process was applied to sixteen dairy producers, one beef producer, and one egg producer.\textsuperscript{237} The AAFM also issued a General Permit in 2007 for Medium Farm Operations (MFOs), which include dairy farms with 200-699 mature dairy cows.\textsuperscript{238} The General Permit requires the 157 MFOs (ninety percent of which were dairy operations) to operate under an approved Nutrient Management Plan and maintain twenty-five foot vegetated buffers on all fields adjacent to surface waters, as well as prohibits manure application within these buffers.\textsuperscript{239} However, to improve regional water quality, the State also needs to more actively monitor and pursue enforcement actions against LFOs which violate conditions of their individually issued permits, as well as against MFOs that may not be in compliance with specific General Permit conditions. Furthermore, to achieve the Lake’s TMDL total phosphorus load reduction targets and improve impaired water quality, the State and ANR must assume their federally-delegated responsibilities and administer Vermont’s NPDES program in accordance with the CWA and applicable federal regulations. Specifically, the ANR must immediately step up to the plate and require NPDES permits for all Vermont farms that discharge or propose to discharge pollutants and meet the federal definition of a CAFO which is statutorily identified as a point source in 33 U.S.C. § 1362(14), including: all LFOs, which by definition qualify as Large CAFOs under 40 C.F.R. § 122.23(b)(4); MFOs which qualify as Medium CAFOs (based on combined size and discharge requirements under 40 C.F.R. § 122.23(b)(6)); as well as any other designated Animal Feeding Operation (AFO) which is determined by the State Director or Regional EPA Administrator “to be significant contributor of pollutants to waters of the [U.S.]” under requirements and factors enumerated in 40 C.F.R. § 122.23(c).\textsuperscript{240}

\textsuperscript{236} Large Farm Operations (LFO) Program, VT. AGENCY AGRIC. (Dec. 16, 2010), http://www.vermontagriculture.com/ARMES/awq/LFO.html; see also VT. AGENCY OF AGRIC., FOOD & Mkt., LARGE FARM OPERATIONS RULES 3 (2007), available at http://www.vermontagriculture.com/ARMES/awq/documents/LFORules.pdf (hereinafter LARGE FARM OPERATIONS RULES] (“[E]stablish[ing] procedures and standards for the preparation and review of large farm operations permit applications, the issuance of permits for the operation or the expansion of large farms, the construction of new buildings, or the expansion of existing buildings for large farm operations in Vermont, [as well as] procedures and standards for permit amendments, permit compliance, . . . permit enforcement [and] direction on maintaining the facility once permitted.”).  

\textsuperscript{237} VERMONT CLEAN AND CLEAR ACTION PLAN ANNUAL REPORT 2008, supra note 184, at 19.  


\textsuperscript{239} Id. at 21.  

\textsuperscript{240} See supra notes 19 and 20. For details and specifics on the many differences between the AAFM’s current regulations for instate farming operations (e.g., LFOs and MFOs) and the EPA’s CAFO
Furthermore, based on violations identified via agency follow-ups on
citizen reports and increased compliance monitoring, ANR should actively
and aggressively commence CWA enforcement actions against any and all
agricultural point source polluters, including CAFOs.

Finally, the AAFM encourages but does not require, the development of
Nutrient Management Plans for the just over 900 remaining farms in
Vermont identified as Small Farm Operations (SFOs) (farms with less than
200 dairy mature cows). While SFOs currently have “no programmatic
system for inspection other than complaints from the public or staff
initiated visits,” the AAFM acknowledges that “[m]ore information is
needed” regarding these small but numerous in state farming operations.
However, while the AAFM finds that small farms receive limited state
oversight, SFOs are like other persons/companies who qualify as engaged in
“farming” or “agricultural practices” and are thus presumed to comply
with AAPs related to water quality and are statutorily exempt from local
zoning regulations or other municipal bylaws.

Finally, while municipalities are statutorily allowed to define public
nuisances, agricultural activities, if consistent with applicable laws and
regulations (such as Vermont’s AAPs) and established before surrounding
non-agricultural activities, are entitled to a rebuttable presumption that their
activities are reasonable and do not constitute nuisances. In sum, while
Vermont’s laws and regulations attempt to address the effects of NPS
pollution, existing state legislation and rules provide remarkably broad and
generous exemptions for established agricultural and silvicultural
operations, especially for SFOs that comprise an overwhelming majority of
the State’s current farming operations. Unfortunately, the revised 2010
TMDL Implementation Plan for the Lake developed by ANR through the

regulations, the ANR’s refusal to regulate existing CAFOs in Vermont that clearly qualify for NPDES
coverage, as well as documented discharges from CAFOs of various sizes in Vermont and problematic
discharge areas, see Vt. Law School, Envtl. and Natural Resources Law Clinic [filed on behalf of their
client, the Conservation Law Foundation], Petition for Withdrawal of the Natl. Pollutant Discharge
Administrator Johnson and Region 1 Administrator Varney).

241. See Land Treatment Planning, Vt. Agency of Agric.,
a land treatment plan includes and providing links to additional resources).

or bylaws also cannot regulate accepted agricultural and silvicultural practices).

243. Id. § 2291(14).

244. Id. § 2291(14).

245. Vt. Stat. Ann. tit. 12, § 5753(a) (noting however that § 5753(b) does provide an express
clause, effective as of 2004, asserting that it does not limit the authority of state or local health boards to
abate nuisances affecting the public health).
State’s Clean and Clear Program does not propose to sufficiently narrow many of these exceptions in the near future (e.g., next five years), nor does it more generally provide long-term solutions that will comprehensively address persistent and continued NPS pollution from instate agricultural land use and management.

III. STATE IMPLEMENTATION OF TMDLS: A TOOLBOX OF LEGAL MECHANISMS

As George Perkins Marsh observed almost a century and a half ago,

Woodlands which have passed into private hands will everywhere be managed, in spite of legal restrictions, upon the same economical principles as other possessions, and every proprietor will, as a general rule, fell his woods, unless he believes that it will be for his pecuniary interest to preserve them. Few of the new provinces which the last three centuries have brought under the control of the European race, would tolerate any interference by the law-making power with what they regard as the most sacred of civil rights—the right, namely, of every man to do what he will with his own. . . . The only legal provisions from which anything is to be hoped, are such as shall make it a matter of private advantage to the landholder to spare the trees upon his grounds, and promote the growth of the young wood. Something may be done by exempting standing forests from taxation, and by imposing taxes on wood felled for fuel or for timber, something by premiums or honorary distinctions for judicious management of the woods. It would be difficult to induce governments, general or local, to make the necessary appropriations for such purposes, but there can be no doubt that it would be sound economy . . . .

As discussed above in Part II.B, while the revised Implementation Plan recently developed by Vermont’s ANR through the State’s Clean and Clear Program provides a detailed and seemingly “comprehensive strategy for implementing the Lake Champlain total maximum daily load [TMDL] plan and for the remediation of Lake Champlain,” as required by the Vermont

246. Marsh, supra note 1, at 201–02.
General Assembly, this revised plan does not go far enough in reducing the pollution stemming from agricultural nonpoint sources. This pollution continues to impair the Lake’s water quality. Furthermore, with $500-800 million (in 2009 dollars) as the total estimated cost of implementing strategies outlined in the 2010 TMDL Implementation Plan, and given the State of Vermont’s recent budget crisis and likely future shortfalls, whether many of the proposed strategies included in this Plan will actually be implemented remains highly uncertain. Finally, the current Implementation Plan does not sufficiently utilize available planning and zoning controls or other regulatory mechanisms which could be used to increase local and state land use controls and/or watershed-based regulations for agricultural land use and management, particularly for smaller farm operations.

Part III evaluates legal mechanisms and governance systems which have been established or are under consideration, that Vermont could use to reduce agricultural NPS pollution which continues to enter the Lake’s drainage basin. Specifically, mechanisms outlined and discussed below include: state and local land use planning and zoning; watershed-based natural resources planning, management, and regulation; mandatory best management practices and whole farm conservation plans; taxation of agricultural inputs and byproducts which contribute to NPS pollution and property tax abatement for well-managed farmlands; and watershed-based pollution trading. This section follows in the footsteps of Marsh as set forth in Man and Nature almost 150 years ago, and builds on a comprehensive review of scholarship and guidance by seasoned academics and policymakers who have considered at length the ecologically, politically and socially complex issue of how to improve the quality of our Nation’s impaired waters.

A. State and Local Land Use Planning and Zoning Controls

One issue that has been repeatedly highlighted as an obstacle to achieving the water quality goals of the Clean Water Act is the lack of federal authority to directly influence local and regional land use planning and zoning, as well as the lack of state-based initiatives to utilize planning and zoning to address NPS pollution. State and local land use planning and zoning is an area of public policy and law that could be used to effectively reduce the vast majority of existing NPS pollution. Planning and zoning powers and related jurisdiction over both state and private lands have

248. See EXECUTIVE SUMMARY, supra note 199 (providing that many of these strategies include financial incentives or ‘carrots’ to encourage the use of voluntary farm-related, cost-share programs).
traditionally been delegated to states within our federalist system of governance, including for non-coastal land use and management that affects the quality of interstate (and international) waters, such as Lake Champlain. However, to date, few states have mustered the requisite social and political will needed to use their broad police powers to address persistent water quality impairments stemming from nonpoint sources.249

As discussed at length in Part II above, the legislative history of the CWA, the text of the CWA, and related judicial case law all strongly support a legal interpretation that the regulation of NPS pollution, specifically land use and management related to agriculture, is primarily reserved to the authority of individual states. In many states, including Vermont, authority to enact local zoning and land use laws is statutorily delegated to local municipalities.250 In Vermont, larger developments are additionally subject to state-level land use review and permitting if they trigger statutory thresholds and are considered “Development” as defined under Act 250.251 Therefore, a logical first step in evaluating ways that the State and its governmental subdivisions can implement the Lake’s 2002 Phosphorus TMDL is to assess the applicability of both traditional and innovative planning and zoning techniques for reducing agricultural NPS

249. See The Two Lost Books in the Water Quality Trilogy, supra note 14, at 54–56 (discussing differences between states’ authority to regulate nonpoint source pollution and federal authority to address point source pollution); Flatt, supra note 65, at 598–99 (noting that many states have not fulfilled their responsibility to develop plans for areas having substantial water quality impairments relating to nonpoint source pollution).

250. See VT. STAT. ANN. tit. 24, § 4401 (describing how towns “may” enact zoning and other land use bylaws, but if they do, these local bylaws “shall” be consistent with approved municipal plans). However, as discussed supra in Part II.B of this article and specifically at footnote 243 included herein, farming and other agricultural, as well as silvicultural activities, are statutorily exempt from municipal zoning and other local land use controls.

251. “Development” is specially defined under Act 250, as codified in VT. STAT. ANN. tit. 10, § 6001(3)(A)(i)–(viii), and includes the construction of housing projects with ten or more units. Development that is not exempted by other provisions of this Act, such as exemptions included in section 6001(3)(B) related to development located within designated growth centers, are also subject to state-level review and permit approval under VT. STAT. ANN. tit. 10, §§ 6001–6101. However, section 6001(3)(D) specifically states that “the word ‘development’ does not include: (i) [t]he construction of improvements for farming, logging or forestry purposes below the elevation of 2,500 feet.” This includes the vast majority of potentially farmable land in Vermont. For example, the elevation of Burlington, Vermont, which lies on the shores of Lake Champlain, is two-hundred feet above sea level. The Town of Underhill, Vermont, which lies at the western foot of Mt. Mansfield, Vermont’s highest peak, is just over a thousand feet. Further, agricultural activities, or “farming” as defined in section 6001(22) to include the cultivation or other use of land for growing food and fiber as well as raising, feeding, or managing livestock, poultry, or fish, is exempt from Act 250 review under section 6081(s)(1) if it occurs on primary agricultural soils preserved in accordance with section 6093 or it does not conflict with any other conditions imposed by an Act 250 permit.
pollution runoff within Vermont’s portion of the Lake Champlain Drainage Basin.

1. Comprehensive Local Planning and Zoning

Authorized by state-level enabling legislation, comprehensive local planning allows residents to democratically create a shared vision for their town’s, city’s, or county’s future growth and development. Designed to identify and articulate community goals and objectives, policies and guidelines included in comprehensive plans (also called master or general plans) serve as templates for future development, as well as for the conservation of key natural resources within a given local government’s jurisdiction (defined by town, city or county lines). These plans can provide a basis for ongoing farmland protection strategies by identifying areas where future growth should be encouraged and where agricultural activities (and/or other land uses, such as sensitive natural resources conservation) should be promoted. Plans can also incorporate local agricultural and conservation objectives and recommend local zoning measures, such as cluster zoning, transfer of development rights (TDR), or purchase of agricultural conservation easements (PACE), which are discussed below.²⁵² Finally, through the comprehensive planning process, Vermont’s cities and towns can also consider whether other innovative natural resources conservation approaches, such as payment for environmental services (or PES, as outlined below) provided by well-managed agricultural and/or forest lands, are appropriately suited for potential use in their communities.

2. Cluster Zoning

Cluster zoning is a fairly common planning and zoning technique used by many municipalities and counties across the country to promote the design of spatially condensed residential and commercial development and conserve identified land-based resources (such as prime farmland soils,

wildlife habitat, steep slopes, floodplains, wetlands, riparian corridors and scenic vistas). This zoning can help to mitigate the adverse environmental effects of land conversion (e.g., crop or forest lands to developed land), which is likely to contribute significantly to future water-quality impairment, as developed lands contribute more polluted runoff on average than undeveloped lands. While the requirements of specific cluster zoning ordinances vary among communities, these ordinances generally allow for or require development to be spatially grouped together, with the aim of protecting open land and associated natural resources. Clustered developments, sensitive natural resource areas (such as riparian corridors and extended buffers adjacent wetlands), and farmland soil resources, infrequently incorporate active commercial agriculture. However, cluster zoning has been used to successfully create transitional areas between farm and residential land uses. In Vermont, as elsewhere around the country, based on local zoning and resources of concern identified on or near the proposed development, clustering may be required by local planning commissions when approving Site Plans, Major Subdivision Plans, or Planned Unit Developments for commercial, industrial or residential uses.

3. Transfer of Development Rights

Transfer of development rights (TDRs) programs allow landowners to transfer their rights to develop from one parcel of land (based on local

253. See BLACK’S LAW DICTIONARY 1912 (9th ed. 2009) (defining cluster zoning as “[z]oning that favors planned-unit development by allowing a modification in lot size and frontage requirements under the condition that other land in the development be set aside for parks, schools, or other public needs”); see also AM. FARMLAND TRUST & CONN. CONFERENCE OF MUNICIPALITIES, supra note 252, at 22 (“Conservation subdivisions—also known as cluster development or open space development—are a commonly used mechanism to reduce the footprint of new residential development [by which h]ousing is concentrated on one part of a site while the remainder of the parcel is protected, typically permanently, as farmland or open space . . . . The parcel is allowed the same number of lots as a traditional subdivision, but the lots are smaller . . . .”).

254. See U.S. ENVTL. PROT. AGENCY, PROTECTING WATER QUALITY FROM URBAN RUNOFF 1 (2003), available at http://www.epa.gov/npdes/pubs/nps_urban-facts_final.pdf (noting that “because of impervious surfaces like pavement and rooftops, a typical city block generates more than 5 times more runoff than a woodland area of the same size”).

255. THE FARMLAND PROTECTION TOOLBOX, supra note 252, at 2; see also TOWN OF WILLISTON COMPREHENSIVE PLAN, supra note 252, for an example of cluster zoning.

256. The author previously worked for the Town of Williston Planning and Zoning Office and currently serves as a Planning Commissioner for the Town of Hartford, Vermont. Also, local development review authority, while generally applicable to municipal and private development, is often limited in scope or is only advisory for proposed state or federal developments under supremacy doctrines.
zoning applicable to that property) to a different parcel of land. Effective TDR systems must clearly designate specific ‘sending’ and ‘receiving’ zones. TDRs are complex in that they require a relatively advanced bureaucratic system to track transfers of development rights, the use of easements to restrict development on sending parcels, and sufficient staff to monitor and enforce development restrictions. Further, as TDRs rely on market forces, sufficient demand for local real estate must exist before developers will buy transferable rights to increase their proposed development density above that already permitted by the base zoning within the designated receiving area.

If sufficient market conditions exist or are likely to exist in the near future, TDRs may be useful to protect key natural resources by shifting development pressure from areas rich in natural resources to areas designated for growth. Steady population growth, the political will to maintain strong zoning ordinances, and the availability of experienced planners who can administer complex regulations are factors that characterize the communities that are the most successful in using TDRs.

Further, zoning regulations for both sending and receiving zones need to be carefully designed to increase the likelihood of success in achieving the community’s stated development and conservation objectives. Thus, although a handful of growing Vermont cities and towns located within the Lake Champlain Basin may currently or at some point in the near future (e.g., over the next five to ten years) develop sufficient market demand to

257. See DAVID L. CALLIES, ROBERT H. FREILICH & THOMAS E. ROBERTS, LAND USE 766–67 (4th ed. 2004) (describing the transfer of development rights as a “significant and complex development technique . . . used in historic, environmental, and agricultural preservation”). Specifically, where development is limited due to a zoning ordinance, [o]wners can recapture resultant losses of value of their land by selling the rights to develop . . . which can be utilized in a receiving area elsewhere in the county [that is] considered appropriate for high density development . . . . The transfer of development rights mitigates the economic impact of environmental restrictions while also providing an incentive to developers for protecting the environment.

258. See J.B. Ruhl, Agriculture and Ecosystem Services: Strategies for State and Local Governments, 17 N.Y.U. ENVT. L.J. 424, 448 (2008) (hereinafter Agriculture and Ecosystem Services) (discussing the challenge of generating a supply of and demand for TDRs); see also A. Dan Tarlock, The Potential Role of Local Governments in Watershed Management, 20 PACE ENVTL. L. REV. 149, 174 (2002) (noting that TDRs “have long been promoted as a substitute for direct compensation, but it is not clear that they will fulfill their potential because it is often difficult to anchor those units on another tract”).

259. THE FARMLAND PROTECTION TOOLBOX, supra note 252, at 7.

260. Marc Mihaly, Director of the Env. Law Center, Vt. Law School, Oct. 5. 2009, pers. comm. (discussing his former professional experience designing a successful TDR system for the City of San Francisco in his capacity as an attorney).
support TDRs, the application of these local programs is clearly limited in rural areas with low population density and development pressures—which currently comprise the majority of lands within the Lake Champlain Basin.

4. Purchase of Agricultural Conservation Easements

The purchase of agricultural conservation easements (PACE), either by private parties (non-profit land trust organizations) or governmental entities, has become a popular method for encouraging the voluntary conservation of agricultural and other natural resources. Since agricultural easements were first acquired during the late 1970s, the American Farmland Trust (AFT) estimates that landowners have placed about 1.1 million acres of farmland nationwide under conservation easements. The Vermont Land Trust (VLT) reports having conserved over 700 farms totaling more than 160,000 acres in Vermont; most of the VLT agricultural conservation projects also received funding from the State of Vermont’s Housing and Conservation Board (VHCB), as well as from private foundations. Created in 1977, VLT continues to be one of the most active private non-profit land conservation organizations working in the State, and the vast majority of farmland properties with conservation easements held by VLT are dairy farms.

PACE agreements are drafted with the purpose of keeping farmland in agricultural use, and all easements must provide some documented public benefit. Conservation easements are recorded deed restrictions that limit future development, land use and/or management in accordance with negotiated terms and conditions. While the farmer, as grantor, gives up some future development and land use rights, he retains the right to use the land for farming and other activities that do not interfere with the property’s agricultural viability and other identified conservation purposes. The grantee (usually a land trust or government agency) is responsible for

261. Including Colchester, Charlotte, Hinesburg, Jericho, Middlebury, Milton, St. Albans, Richmond, Vergennes, and Williston, which still have a relatively abundant amount of undeveloped and/or agricultural lands, but are located in or near growing population centers, primarily surrounding Burlington, Vermont’s largest city.
263. About the Vermont Land Trust, VT. LAND Tr., http://www.vlt.org/about-vlt (last visited Dec. 15, 2010).
264. Id.
266. Id. at 22.
legally holding, monitoring, and enforcing the terms of this “negative” or restrictive easement.267 Most conservation easements restrict future development in perpetuity, and only gifts of perpetual easements qualify donors for federal income tax and estate tax benefits.268 While most prospective holders will only accept perpetual easements, limited-term easements may also be written for a specific term of years.269 All agricultural easements should at a minimum include the conservation of significant natural resource features, such as wetlands and riparian corridors; other terms can and should relate to acceptable agricultural management practices and standards.

In sum, PACE programs allow farmers to receive cash equity for conserving their land for agricultural and natural resources uses. They also provide an alternative to selling farmland properties for non-agricultural development purposes. Permanent easements often reduce the future market value of the encumbered property, which can help facilitate intergenerational family land transfers or make the farm in question more affordable for other interested non-family farmers. Liquid capital provided by PACE agreements can help farmers enhance the economic and ecological viability of their farm operations and make needed and environmentally sensitive infrastructure improvements.270

5. Payments for Environmental Services

Observing that, “agriculture has long been the Rubik’s Cube of environmental policy,” legal scholars and economists have recently suggested innovative ways to value the “multifunctional capacity of farms to contribute to the environmental and economic wellbeing of the landscape while continuing to serve as our primary source of food and fiber.”271 Notable natural capital ‘produced’ by farms managed with environmental stewardship includes the preservation of biological diversity (e.g., diversity of plant, animal and insect species); groundwater recharge; and improvement of both ground and surface water quality. However, most U.S.

267. THE FARMLAND PROTECTION TOOLBOX, supra note 252, at 3; See also BYERS & PONTE, supra note 265, at 22 (describing the easement holder’s responsibilities).
268. BYERS & PONTE, supra note 265, at 21.
270. THE FARMLAND PROTECTION TOOLBOX, supra note 252, at 5; BYERS & PONTE, supra note 265, at 199 (discussing how agricultural easements can be used to help maintain a “viable, working landscape into the future”).
271. Agriculture and Ecosystem Services, supra note 258, at 424–25.
agricultural “research and development . . . and policy have traditionally focused on maximizing biomass production and optimizing its use, with far less emphasis on evaluation of environmental, social, and economic performance.”272 In contrast to this traditional approach, the farmland multifunctionality approach emphasizes “the joint production of standard commodities (e.g., food and fiber) and ‘ecological services’ on the premise that ‘major additional gains may result from a ‘working landscape’ approach that improves environmental performance of active farmland by rewarding farmers for delivering environmental benefits, as well as food and biomass.”273 Payments for ecosystem services can be valued by the avoided cost of technological infrastructure and upgrades (e.g., the avoided costs of municipal water purification upgrades where enhanced ecosystem services provided by farms effectively safeguard local drinking water quality). Monetarily valued in this way, local or state payments can be a demand-driven payment for valuable services rendered, instead of a subsidy or payment for intrinsic ecological benefits, such as wildlife habitat or clean surface and groundwater.274

The Florida Ranchlands Environmental Services Project provides an example of a payment for environmental services program. Started in 2005 by a collaboration of public and private partners, including the World Wildlife Fund, this pilot project allows cattle ranchers in an 850,000-acre area located north of Lake Okeechobee, to sell the enhanced delivery of ecosystem services, specifically water retention, phosphorus load reduction, and wetlands habitat expansion, to government agencies and other willing buyers.275 As observed by Professor J.B. Ruhl, “[u]nderstanding the multifunctional capacity of agricultural lands . . . provides insight into how state and local governments, with federal guidance and support [can] promote alternatives that blend enhanced environmental performance with better development planning.”276 And in general, a successful state or local payment program “must [be] devise[d] [in such] a way for the buyer and seller to know that payment X yields service value Y, and that this [equals] a rational economic move for both parties.”277 Agricultural methods that can

272. Id. at 432 (quoting N. Jordan et al., Sustainable Development of the Agricultural Bio-Economy, 316 Sci. 1570, 1570 (2007)).
273. Id. (quoting N. Jordan et al., Sustainable Development of the Agricultural Bio-Economy, 316 Sci. 1570, 1570 (2007)).
274. Id. at 429.
275. Id. at 446–47 (citing Sarah Lynch & Leonard Shabman, The Florida Ranchlands Environmental Services Project: Field Testing a Pay-for-Environmental-Services Program, RESOURCES, Spring 2007 at 17, 17–18).
276. Id. at 459.
277. Id. at 447.
be used by farm operations to achieve a balanced production profile include: precision farming, contour farming, rotational cropping, no-till farming, organic farming, crop residue usage, riparian buffer cover, filtration strips, and water retention and recharge ponds. For active farmland, preservation of an accepted status quo (e.g., the certified use of Vermont’s AAPs, discussed supra in Sect. II.B), could provide a farmer with a base ecosystem services payment, while sets of more stringent land management and restoration practices could define higher levels of service premiums.

B. Watershed-Based Natural Resources Planning, Management, and Zoning

The concept that watersheds provide a very logical geographic unit for water resource planning and land use management to regulate the environmental effects of agriculture, specifically water and soils, is not a new idea. Federal and state watershed-based proposals focused on the relationship between land use and water quality date back to the 1930s. While several recent studies review the opportunities and constraints of watershed-based natural resources management, Professor Adler identifies imperatives for why such an approach is necessary for effective water quality protection and restoration in his landmark article, Addressing Barriers to Watershed Protection; these imperatives include ecological, institutional, economic, as well as social needs, pressures, and realities. Factors that strongly suggest an ecological imperative for watershed-based management include the nature of aquatic ecosystems (e.g., the close interaction between land and water); the continued decline in aquatic species and ecosystem health; and the primary impairment sources (e.g., NPS pollution) that source-specific regulatory programs have not addressed. Institutional factors include political fragmentation of domestic institutions charged with managing and protecting water

278. Id. at 432.
279. Id. at 455 (identifying a possible tiered system for defining PES premiums).
282. See Addressing Barriers to Watershed Protection, supra note 37, at 981–1003 (discussing the ecological, institutional, economic, and social imperatives necessary for successful watershed-based protection and restoration).
283. Id. at 981.
resources; issue fragmentation, including the artificial legal division of water quality-related issues, such as land and water use; and the gaps in water resource policy program design and implementation, including its continued failure to control NPS pollution.284

Over the last thirty-plus years, Congress and the EPA have experimented with a series of federal NPS planning initiatives, including ‘area-wide planning’ under section 208 of the CWA. The utilization of land use-based regulatory authority by county Conservation Districts engendered broad public interest during the mid-1970s, as efforts progressed to implement the area-wide planning provisions.285 However, for reasons outlined above in Part I.C, notably the lack of state and local land use regulations, section 208 planning was unsuccessful in controlling NPS pollution.286 Among the different watershed-based proposals developed during the 1900s, federal efforts include those by the U.S. Soil Conservation Service (SCS, now the U.S. Natural Resources Conservation Service or NRCS), which were aimed at promoting state enactment of local Conservation Districts during and after the 1930s.287 The general history of Conservation Districts across the United States, existing Districts and state watershed planning initiatives in Vermont, and the potential future enhanced role for watershed-based Conservation Districts in improving and restoring both Vermont’s and Lake Champlain’s water quality are discussed below.

1. The History of Conservation Districts

The use of watersheds as an institutional framework for public policy, planning and localized political decision-making for agriculture, land use

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284. Id. at 991–95.
285. Frarey, Jones & Pratt, supra note 52, at 155–56 (noting that even districts permitted to adopt land use regulations have generally failed to do so).
286. Id. at 156–57.
287. See SCHLAGER & BLOMQUIST, supra note 281, at 32–34 (discussing river basin development by the Bureau of Reclamation (Bureau) and Army Corps of Engineers (Corps), from 1933 to 1980, as well as the more current and ongoing Watershed Movement from 1980 to 2007); see also Addressing Barriers to Watershed Protection, supra note 37, at 1003–10 (reviewing Progressive Era, New Deal, and Post-War Watershed Proposals, as well as the Water Resource Planning Act of 1965); MARC REISNER, CADILLAC DESERT: THE AMERICAN WEST AND ITS DISAPPEARING WATER 134–36 (Penguin Books, 2d ed. 1993) (1986) (observing that “historic river-basin ‘planning’ was really more of an effort to coordinate the Bureau’s upstream agricultural irrigation projects with the Corps’s downstream river and harbor navigation improvement projects, and that, unlike efforts that began during the 1980s, which are aimed at using watershed-based planning to improve and restore water quality, these historic river-basin ‘planning’ efforts focused primarily on water resources development, and “no one ever spent more than a minute or two thinking about the value of a river in its natural state”).
and related land management dates back to the ‘dirty ‘30s’ and the American ‘Dust Bowl.’

The U.S. Dept. of Agriculture’s then-new SCS published a model Standard State Soil Conservation Districts Law in 1936 to enable the creation of local ‘soil conservation districts’ as state government subdivisions and promote a localized approach to farm-based soil erosion. In exchange for the SCS’s technical service, advice, and federal funding, states were required to enact enabling legislation for conservation districts. States adopted laws, but with significant modification.

The SCS model law proposed that soil conservation districts organize along watershed boundaries and possess the power to regulate agricultural land uses. However, many state legislatures eliminated both of these key elements. States also rejected the SCS recommendation to provide conservation districts with taxing powers. Instead, as continued in many states to date, state laws direct conservation districts to organize along county lines and few possess (or utilize) land use authority. Today, relying primarily on community education, technical assistance, and cost sharing, conservation district supervisors and staff face the “unenviable task of encouraging voluntary adoption of conservation practices, but without the substantial federal subsidies, without police power authority, and without the organizational logic of the watershed.”


289. Local and Watershed Land Use Controls, supra note 281, at 10.

290. See Frarey, Jones & Pratt, supra note 52, at 153–54, stating that despite “significant opposition” to the establishment of local districts, twenty-two states adopted enabling legislation in 1937, followed by an additional sixteen states by 1940. By 1945, every state permitted the establishment of local districts. Id. Spurred by strings attached to federal funding, after 1936, thirty-three states simultaneously provide districts land use regulatory powers. Id. By 1975, that number declined to twenty-seven. Id.

291. Local and Watershed Land Use Controls, supra note 281, at 10.


293. Frarey, Jones & Pratt, supra note 52, at 154–55 (noting that even districts permitted to adopt land use regulations have generally failed to do so); see also Conservation Agriculture: An Old New Idea, supra note 288, at 22, 67 (“State legislatures disappointed the SCS by organizing conservation districts along existing county lines and denying them both taxing and police power controls. The result was that the amount of voluntary compliance by private landowners roughly paralleled the amount of federal cost-sharing available.”).
2. Existing Conservation Districts in Vermont

The formation, organization and powers of Vermont’s Natural Resources Conservation Districts (NRCDs) (formerly Soil Conservation Districts) are set forth in the Soil Conservation Act (SCA) of 1939 and its amendments. Specifically, the SCA provides for the establishment of a state-level Natural Resources Conservation (NRC) Council, a referendum-based process by which landowners can petition this Council to create local Conservation Districts as subdivisions of the state, and the election of District Supervisors. The statutory powers of local District Supervisors include the “authority to formulate regulations, as hereinafter provided, governing the use of lands within the district in the interest of conserving soil, controlling soil and stream bank erosion and promoting conservation of natural resources and drainage.” The SCA allows District Supervisors, subject to a majority vote of approval by District landowners, to enact land use regulations into ordinances, the SCA also provides for the amendment or repeal of approved land use regulations and ordinances, as well as termination of the District itself, by landowner petitions or a referendum. For the enforcement of approved ordinances, this statute identifies actions that District Supervisors can take in the event of a specific landowner’s non-compliance, including referral to a board of adjustment appointed by the NRC Council, and petitioning a superior court to require the landowner’s conformity with the District’s ordinance. Finally, the

295. Id. § 703 (noting members of the NRC Council include the Vermont Extension Service Director, ANR and AAFM Secretaries or their designated representatives, and an elected District supervisor who serves for a term of two years).
296. See id. §§ 709–718. Note that the determination of need hearing for a petition submitted by at least twenty-five landowners within a proposed District is based on the state-level Council’s finding that there is a need for the district, based on “the interest of the public health, safety, and welfare.” Id. § 709–711.
297. Id. §§ 719–721.
298. Id. § 724. For other duties and powers of Conservation District supervisors, see id. §§ 722–725.
299. Id.
300. Id. §§ 728–729. Note that under section 729, any twenty-five landowners can petition Vermont’s Natural Resources Conservation Council for the termination of a district’s operations and existence. Specific proceedings for the Council to determine whether a district should be terminated are set forth in Ch. 31. Id. § 729.
301. Id. §§ 731–734. Note that under section 734 if supervisors elect to petition the court, the superior court “shall order such relief as it may deem necessary in the interest of public health, safety and welfare.” Id. § 734. The Act further requires that any money paid or act performed must protect the landowner’s own land, be found “in just proportion to the benefits he will receive and . . . deemed necessary for the public good.” Id.
SCA provides a specific process for the future division or combination of created Districts.302 While the SCA delegates to District Supervisors the authority to formulate land use regulations, and subject to a majority approval by affected landowners, enact these regulations into enforceable District Ordinances,303 current NRCDs, including the Winooski NRCD (which encompasses Washington County, Chittenden County, and part of Orange County),304 and other county-based NRCDs,305 do not utilize their statutorily delegated land use regulatory authority.306 They instead focus on coordinating available technical, financial, and educational resources to meet “the needs of the land user.”307 In Vermont, NRCDs function primarily as non-regulatory entities and serve as liaisons between government entities and local landowners.308 Examples of recent activities undertaken by the Winooski NRCD include: providing technical assistance on land treatment planning, best management practices, and AAPs; giving Stewardship Awards to farmers who utilize exemplary land conservation practices; and offering incentive payments to farmers who use cover cropping.309

302. Id. §§ 736–740.

303. Id. §§ 723–724.

304. Conservation Districts: District Map, VT ASS’N CONSERVATION DISTRICT (2010), http://www.vacd.org/conservation-districts. The NRCD also includes a majority of the Winooski River basin, portions of the Upper Champlain basin, and lower Lamoille River basin. Id.

305. Other county-based NRCDs include Lamoille County, which includes the upper Lamoille River basin and northern Winooski River basin; Franklin County, which includes portions of the Upper Champlain and Missisquoi basins; Orleans County, which includes the upper Missisquoi basin; and Grand Isle County, which includes portions of the Upper Champlain Basin. Id.

306. Statement based on author’s review of current Vermont NRCD websites, specifically the Winooski NRCD and Lamoille County NRCD. Id.; Telephone Interview with Abbey Willard, former District Supervisor, Winooski Natural Resource Defense Council (Jan. 28, 2010).

307. Functions of Conservation Districts, WINOOSKI NAT. RESOURCES CONSERVATION DISTRICT, http://www.vaecd.org/winooski/winooski_about.shtml (last updated June 11, 2009); see also Vermont Conservation Districts, VT AGENCY NAT. RESOURCES, http://www.anr.state.vt.us/cleanandclear/ag-condist.htm (last visited Dec. 15, 2010) (discussing the role of District-based Agricultural Resources Specialists, a position funded by the State of Vermont and EPA, in offering technical assistance, especially to help farmers meet Vermont’s Accepted Agricultural Practices). In Vermont, the main responsibilities of District Supervisors are fundraising, grant writing, and where applicable, staff management. District activities are primarily funded through grants, with an insecure base allocation of funding, which varies annually, from the AAFM. Many Supervisor positions started as part-time and/or seasonal. While several Supervisor positions, including those for the Winooski and Lamoille NRCDs, have grown to be full-time, many other District Supervisors still work part-time and generally provide supplemental incomes to dual-income families. Finally, all Supervisors receive relatively low compensation for their work and limited employment benefits. See generally Telephone Interview with Abbey Willard, supra note 306.

308. Telephone Interview with Abbey Willard, supra note 306.

Similarly, the mission of the Lamoille County NRCD, established in 1945, is “to aid and educate fellow citizens” about natural resources management and to “be a local voice for conservation, preservation[,] and stewardship of all natural resources.” 310 In sum, while providing key technical and educational resources to local communities and citizens across Vermont, as well as serving as local liaisons between landowners and different levels of state and federal government, NRDCs do not currently utilize their delegated land use regulatory authority and are primarily organized by county or combinations of counties, instead of by watershed boundaries.

3. Vermont’s Current Watershed Planning Initiative

Over the last decade, Vermont has been persistent and creative in developing its Watershed Planning Initiative. In response to a mandate from the state legislature, the Agency of Natural Resources “renewed” its commitment to river basin planning and water quality restoration efforts in 2000.311 As required by state and federal water quality laws and regulations,312 the ANR, through the Department of Environmental Resources Conservation District & Nature Center, http://www.lcnrcd.com/index.html (last visited Dec. 15, 2010). The Lamoille County NRCD and Nature Center provide summer camp programs for kids and are involved in several local initiatives, including the Lamoille Watershed Initiative which, “recognizing the need for a group that can lead watershed-wide implementation efforts,” provides coordination between organization who serve the watershed, support local watershed-improvement actions, and raise public awareness “through effective communications, education, and engagement.” Lamoille Watershed Initiative, LAMOILLE COUNTY NAT. RESOURCES CONSERVATION DISTRICT & NATURE CENTER, http://www.lcnrcd.com/Watershedhome.html (last visited Dec. 15, 2010). Activities performed by the NRCD under this initiative include organizing stream bank plantings and education events, and facilitating the volunteer-based Lamoille Watershed Water Quality Monitoring and Exchange Project via local colleges and schools.

310. Our Mission, LAMOILLE COUNTY NAT. RESOURCES CONSERVATION DISTRICT & NATURE CENTER, http://www.lcnrcd.com/index.html (last visited Dec. 15, 2010). The Lamoille County NRCD and Nature Center provide summer camp programs for kids and are involved in several local initiatives, including the Lamoille Watershed Initiative which, “recognizing the need for a group that can lead watershed-wide implementation efforts,” provides coordination between organization who serve the watershed, support local watershed-improvement actions, and raise public awareness “through effective communications, education, and engagement.”


312. 33 U.S.C. § 1313(e)(1) (2006); 40 C.F.R. § 130.6 (2009); VT. STAT. ANN. tit. 10, § 1253(d) (2009) (requiring the ANR Secretary to revise all seventeen sub-basin plans by January 1, 2006, update them every five years thereafter, and prepare an overall management plan to ensure that the water quality standards are met in all state waters). The Natural Resources Board requires basin plans to inventory the existing and potential sources of pollution, establish a strategy to improve or restore waters, ensure full support of designated uses, and serve as a guide, consistent with applicable state and federal law, for how various sources of pollution within each basin will be managed in order to comply with Vermont’s Water Quality Standards. VT. CODE R. 12 004 052 § 1-02D(1)–(6) (effective Jan. 1, 2008), available at http://www.nrb.state.vt.us/wrp/publications/wqs.pdf. Plan recommendations “pertaining to the enhancement and maintenance of the quality of waters within the basin,” after being approved by the ANR Secretary are to be given “due consideration” by the Natural Resources Board in subsequent rulemaking. Id. § 1-02D(4), (6).
Conservation (DEC), developed (or is developing) Water Quality Management Plans for Vermont’s seventeen major river basins. As used by the State of Vermont for basin or watershed planning, the term “basin” refers to the seventeen instate major river basins identified by the DEC, the term “watershed” refers to any drainage that may be larger, smaller, or synonymous with these seventeen hydrologic units. Basin Planning Process, VT. DEPARTMENT ENVTL. CONSERVATION, http://www.anr.state.vt.us/dec//waterq/planning/htm/pl_basinplan.htm (last updated Mar. 2007).

313. As used by the State of Vermont for basin or watershed planning, the term “basin” refers to the seventeen instate major river basins identified by the DEC, the term “watershed” refers to any drainage that may be larger, smaller, or synonymous with these seventeen hydrologic units. Basin Planning Process, VT. DEPARTMENT ENVTL. CONSERVATION, http://www.anr.state.vt.us/dec//waterq/planning/htm/pl_basinplan.htm (last updated Mar. 2007).

As identified by the DEC, the Lake Champlain Basin encompasses seven major river basins including: Lamoille River, Missisquoi Bay (which includes the Missisquoi River, Black Creek, Tyler Branch, and Trout River), Upper Lake Champlain (or Northern Lake Direct, which includes the LaPlatte River, Malletts Bay, St. Albans Bay, Rock River, and Pike River), and Winooski River. Water Quality Management Plans were recently approved by the ANR for the Lamoille River and Northern Lake Direct in 2009. In 2006, an unofficial draft management outline was created to aid ongoing public discussion and continued planning efforts for the Missisquoi River basin. Planning and related public participation is finally underway for the Winooski River, but a Water Quality Management Plan for this river basin has not been completed yet.

The purposes of river basin water quality management plans, as identified by the DEC in its 2007 Vermont Watershed Initiative Guidelines for Watershed Planning (Guidelines), are to help communities and the state decide how to “[r]estore the waters most affected by polluted discharges and runoff[; p]rotect the waters and adjacent access threatened by pollution . . .[; and e]stablish management goals for all waters through planning.” 315


315. Specific Basins and Planning Activities, supra note 314 (noting that the other three sub-basins within the Lake Champlain Basin, located toward the southern end of the Lake, include: the Lower Lake Champlain (or Southern Lake Direct); Otter, Little Otter, and Lewis Creeks; and the Poultney-Mettowee River). In 2005, a final Water Quality Management Plan was completed for the Poultney-Mettowee, but basin planning for the Lake’s other two southern river basins has not been completed to date. PROGRESS REPORT ON RIVER BASIN WATER QUALITY MANAGEMENT PLANNING DURING 2007, supra note 314, at 3–4.

316. PROGRESS REPORT ON RIVER BASIN WATER QUALITY MANAGEMENT PLANNING DURING 2007, supra note 314, at 3–4.
classification and other designations.” 317 According to Guidelines, the “keystones” on which water quality management plans “must be based” are: “voluntary action, public involvement, adequate funding . . . , and common sense approaches.” 318 Further, the Guidelines’ principles also state that these “[p]lans should emphasize voluntary action to solve [all] identified problems.” 319 Supported by a DEC Watershed Coordinator, Watershed Councils, comprised of interested local volunteer participants, are responsible for guiding and participating in the planning process for each river basin. Besides serving as the DEC’s main contact and lead in river basin planning, Coordinators are responsible for carrying out (directly or indirectly through other parties) the strategies identified in plans, as well as working “with landowners and resource agencies to meet the needs of landowners while determining methods that they are willing to apply to restore waters.” 320

In addition to clearly providing useful information about river basins, Vermont’s basin-specific Water Quality Management Plans seek to engage public participation via commendable watershed-based collaboration and consensus-building efforts; help to identify and prioritize basin-specific water quality problems; and summarize applicable existing state and federal regulatory and non-regulatory programs. 321 However, there appears to be no

317. VERMONT WATERSHED INITIATIVE: GUIDELINES FOR WATERSHED PLANNING, supra note 311, at 4.
318. Id.
319. Id. at 6 (emphasis added).
320. Id. at 13–15. As of January 2008, there were eight DEC Watershed Coordinators (also known as Basin Planners) located throughout the state. PROGRESS REPORT ON RIVER BASIN WATER QUALITY MANAGEMENT PLANNING DURING 2007, supra note 314, at 3.
321. VT. AGENCY OF NATURAL RES., DRAFT WATER QUALITY MANAGEMENT PLANS FOR THE NORTHERN LAKE CHAMPLAIN DIRECT DRAINAGES 10–11 (2009), available at http://www.anr.state.vt.us/dec//waterq/planning/docs/pl_basin5.FinalExecutive%20Summary.pdf. (recommending collaborative efforts related to agricultural water quality in the Northern Lake Direct Plan including “assistance from the agricultural resource agencies and the community” to help the agricultural community with phosphorus and sediment reduction efforts). Specifically, several top strategies identified by the Northern Lake Direct Plan for reducing phosphorus include: providing outreach and technical assistance to farmers to help them in “evaluating their own farming practices,” providing the growing equine (or horse) industry with best management practice information, and working with volunteer-based community groups to obtain local and state funding to subsidize nutrient management programs and address eroding river banks. Id. at 52. Referenced TMDL strategies for the Lake include cost-share programs for agricultural BMPS, alternative manure management grants, and research and technical assistance for farmers. Id. at 68. Finally, the three-quarter-page Implementation Chapter highlights the use of the same collaborative process utilized for basin planning for implementation of recommended strategies. Id. at 81; see also VT. AGENCY OF NATURAL RES., LAMOILLE RIVER BASIN WATER QUALITY MANAGEMENT PLAN—DRAFT 3 (2009), available at http://www.anr.state.vt.us/dec//waterq/planning/docs/pl_basin7.finalplan.pdf (highlighting the use of a voluntary, collaborative watershed-based process in plan development and implementation).
statutory requirement for implementation of recommended Basin Plan strategies except for “due consideration” by the Natural Resources Board in rulemaking related to future amendments of the Vermont Water Quality Standards. The role of Coordinators, as outlined by the ANR in its 2008 Progress Report, is to lead the development of Water Quality Management Plans, serve as a communication link, and “help educate and persuade individual landowners and business owners to prevent or abate what is essentially considered to be nonpoint source pollution from their property.”

Thus, the Coordinator’s role in plan implementation is one of advice and encouragement. Watershed Coordinators and Watershed Councils cannot implement recommended plan strategies without specific landowner consent, as neither have authority to create, require, or enforce related agricultural land use controls or basin-specific agricultural management strategies.

Furthermore, while consensus-based collaboration and voluntary stakeholder participation may be appropriate in limited circumstances, the effectiveness of watershed-based collaboration for implementing TMDLs and solving persistent water quality issues (such as agricultural NPS pollution) is a relevantly recent development that has not yet been fully analyzed. Recent experimentation with the use of collaboration to address prioritized and recommended strategies to reduce agricultural NPS, this Plan also highlights the need for increased education for the equine/horse industry, educational workshops for sheep and goat farmers, development of cover crop and crop rotation demonstration projects, and funding from federal programs to increase the use of erosion reduction techniques to reduce erosion and nutrient runoff from cropland and farmsteads. Interestingly, according to the AAFM data, there are only 20 sheep producers and an estimated 30 horse farms, as opposed to 108 dairy and 27 beef farms, in the Lamoille River basin. The number of goat farms is not provided. The one-half-page Implementation Chapter of the Lamoille Plan includes securing funding for recommended actions such as agricultural BMPs and working with local, state, and federal agencies to obtain easements on riparian and wetlands areas. In sum, strategies emphasize education, research, demonstration, technical assistance, and cost-share funding to promote and encourage voluntary improvements to agricultural land management.

complex natural resource management issues has its skeptics\(^\text{325}\) and is viewed by seasoned academics with “guarded optimism.”\(^\text{326}\) Likely obstacles to successful application of watershed-based collaboration within the seven in-state river basins of the Lake Champlain Drainage Basin include strategic, psychological, and institutional barriers.\(^\text{327}\) Other procedural and substantive challenges to collaborative decision-making and action include implementation and monitoring issues, stakeholder representation, legitimacy, and measurements of collaborative success.\(^\text{328}\) As a mandatory backstop to locally generated water quality management plans, the state through the ANR should be statutorily required to develop and implement its own management plans for Vermont’s river basins, subject to public notice and comment. Additionally, if management plans created through Vermont’s current collaborative basin planning process fail to meet quantitative performance standards (including specific target phosphorus load reductions based on those included in the Lake’s TMDL) by a specific date, they may be subject to citizen suits for agency-related inaction.\(^\text{329}\)

Any successful voluntary collaboration-based efforts to reduce NPS pollution will be highly context and issue dependent. They will be contingent on the voluntary, good faith participation of stakeholders; support from state environmental and agricultural agencies; the commitment of sufficient time and money; as well as the implementation and monitoring of the resulting river basin-specific agreements.\(^\text{330}\) Also, while DEC Coordinators serve as an important link for the ANR to watershed-based efforts to implement river basin plans, professional third-party mediators (e.g., lawyers with alternative dispute resolution practices and other such professionals without political or administrative biases)

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326. Are Community-Based Watershed Groups Really Effective?, supra note 324, at 60; see also Mark Lubell et al., Conclusions and Recommendations, in SWIMMING UPSTREAM 261, 289 (Paul A. Sabatier et al., eds., 2005) (acknowledging that even as general supporters of the collaborative approach, watershed-based collaboration “is not a magic bullet that addresses all situations at all times”).


328. Id.

329. The author thanks Prof. David Mears of Vt. Law School for providing this suggestion.

330. Implementing TMDLs: Is Watershed-Based Collaboration the Answer?, supra note 327.
should facilitate collaborative efforts to implement strategies included in Water Quality Management Plans.331 Prior to any continued investment in collaborative processes for implementing watershed-based strategies, third-party mediators should conduct a standard Conflict Assessment to determine if specific issues are ripe for this method of resolution which is extremely time-consuming and has uncertain regulatory outcomes, or is better suited for continued debate in traditional political and legal forums.332

Finally, alternative dispute resolution professionals will likely conclude from their initial Conflict Assessment that under existing state laws and regulations a collaborative process will not achieve a consensus-based agreement or improve water quality. Existing regulations, specifically Vermont’s Accepted Agricultural Practices, do not provide sufficient incentives for all necessary stakeholders, particularly those who prefer the status quo, to participate in this voluntary process. However, creditable state initiatives that signal imminent and comprehensive changes to existing state laws and regulations would likely provide motivation for all key parties to engage in collaborative efforts to reduce NPS pollution and implement creative, efficient solutions to improve the water quality of Lake Champlain and its tributaries. In sum, while a watershed-based collaboration approach is definitely not the silver bullet for solving Lake Champlain’s persistent water quality problems, given the right circumstances, it does present another tool that can be used in conjunction with existing and future regulatory mechanisms. Finally, if the watershed-based collaborative planning and implementation efforts fail to meet performance standards set by a date certain, the State should retain backstop authority to develop and implement river basin water quality management plans.

331. See Robert H. Mnookin, Why Negotiations Fail: An Exploration of Barriers to Conflict Resolution, 8 OHIO ST. J. ON DISP. RESOL. 235, 248–49 (1993) (noting that skilled third-party mediators can help facilitate the efficient resolution of a dispute by assisting parties to overcome specific barriers to collaboration); see also Kimberly A. Wade-Benzoni et al., Barriers to Resolution in Ideologically Based Negotiations: The Role of Values and Institutions, 27 ACAD. OF MGMT. REV. 41, 53 (2002) (discussing the importance of recognizing ideological barriers in environmental disputes in order to eliminate bias).

4. The Future Role of Watershed-Based Conservation Districts

Vermont and other states over the last seventy-plus years have repeatedly assumed the role of giving advice, encouragement, and technical assistance, in addition to coordinating funding for cost-share programs to support the voluntary implementation of best management practices, with limited success in terms of quantitative reductions for agricultural NPS pollution.\(^{333}\) Agricultural history in the United States indicates that without conservation easements or other mandatory restrictions, most voluntary efforts to conserve sensitive natural resource areas quickly subside when economic conditions favor more intensive agricultural land uses.\(^{334}\) Thus, learning from the limited success of past attempts to reduce NPS pollution, and building on the institutional and statutory framework of Vermont’s Conservation Districts and Watershed Planning Initiative, this article strongly recommends that Vermont, as part of Lake Champlain’s TMDL implementation, proactively link its fourteen Natural Resource Conservation Districts with the ongoing watershed planning within the seventeen instate river basins. While county lines currently serve to geographically organize most of Vermont’s NRCDs,\(^{335}\) state legislation provides a process for amending District boundaries.\(^{336}\) To effectively implement watershed-based strategies to improve water quality, especially within the Lake Champlain Basin, as well as to provide a local source of related watershed-based land use regulation, current Districts should be modified, to the greatest extent possible, to conform with river basin boundaries.

\(^{333}\) See Protecting Water Quality from Agricultural Runoff, supra note 103 (describing state assistance for NPS pollution); LCBP Report 2008, supra note 103 (noting that despite the incentives that the State of Vermont has provided to farmers to maintain better management practices, agricultural run-off remains a source of NPS pollution).

\(^{334}\) For example, during and following World War II, many Dust Bowl farmers neglected to maintain or removed vegetative shelterbelts planted by the U.S. Works Projects Administration under the Great Plains Shelterbelt Project to reduce soil erosion and increase soil moisture when agricultural product prices increased and federal crop subsidies were based on output. See R. Douglas Hurt, The Dust Bowl: An Agricultural and Social History 136–38 (1981); Conservation Agriculture: An Old New Idea, supra note 288, at 21–22; Worster, supra note 288, at 221–24; see also J.B. Ruhl, Farms, Their Environmental Harms, and Environmental Law, 27 Ecology L.Q. 263, 326 (2000) [hereinafter Farms, Their Environmental Harms, and Environmental Law] (“Evidence suggests that farmer participation in [federal] green payment programs [(e.g., Conservation Reserve, Wetlands Reserve, Wildlife Habitat Incentives, and Env. Quality Programs)] is highly sensitive to market commodity prices and does not reflect any newly found farm stewardship ethic. Farmers, like most of us, follow the money.”).

\(^{335}\) See Conservation Districts: District Map, supra note 304 (illustrating the overlap of county lines with conservation districts in Vermont).


Further, through the use of their statutory authority related to land use regulation, Districts within the Basin should be provided with additional funding, staff, and legal support to evaluate and assess opportunities to improve impaired water quality and reduce agricultural NPS pollution. This evaluation should consider an expanded role for Watershed Councils to be incorporated under the institutional framework of watershed-based Districts. Specifically, the State and the Districts should assess if Council membership should be revised to include elected and/or appointed local representatives to serve on quasi-judicial bodies charged with the review and approval of rural land uses (e.g., agricultural and forestry operations) that significantly affect water quality under related District ordinances. They should also reconsider if voter eligibility based on real property ownership is still democratically sufficient, and should reconsider how the fair representation of the interests of all citizens residing within Districts and due process rights for affected landowners can be balanced in amendments to the statute. Generally, statutes that allow all eligible District voters to participate provide the broadest level of public participation. Statutes requiring land ownership to vote, like Vermont’s current legislation, may be considered unduly restrictive under today’s standards and in light of the impacts of NPS pollution on the State’s regional water resources.

Finally, the mission of Districts to provide education and technical assistance to landowners, as well as facilitate conservation projects and inter-governmental relationships, should be supported. Missions should also be consistent with state-level objectives for Districts, which in turn should also be consistent with broader interstate and international water quality goals. Additionally, a more stable source of state-level funding should be earmarked to support the development of an expanded regulatory function for Districts, including for watershed-based agricultural land use and management that impairs in-state, interstate, and international water quality. Alternatively, enabling legislation could be amended to provide Districts with taxing authority. Specifically, these amendments could allow for the independent financing of District operations through “property taxes or special assessments, recreational user fees, water utility fees, and

337. See generally J.B. Ruhl et al., Proposal for a Model State Watershed Management Act, 33 ENVTL. L. 929 (2003) (detailing proposed watershed-based management frameworks); see also Local and Watershed Land Use Controls, supra note 281, at 11–14 (outlining election processes and duties of elected local representatives).

338. Ruhl et al., supra note 337; see also Frarey, Jones & Pratt, supra note 52, at 159 (describing the history of voting rights based on land ownership).

339. Local and Watershed Land Use Controls, supra note 281, at 12.
development-permit fees . . . .”340 In sum, the organization, function, and funding of Districts should be expanded as part of Lake Champlain’s TMDL implementation to integrate watershed-based planning and water quality management strategies, as well as provide a source of land use regulatory controls aimed at reducing local agricultural runoff.

C. Mandatory Best Management Practices and Whole Farm Conservation Plans

Another approach for reducing NPS pollution from in-state farming activities is for the state to require Best Management Practices and development of enforceable “whole farm” conservation plans for smaller farms. To date, Vermont, through the AAFM, has developed a three-tiered system for regulating farm operations based on the number of animals raised which include: Small Farm Operations (SFOs), Medium Farm Operations (MFOs), and Large Farm Operations (LFOs).341 While SFOs are required to meet the State’s Accepted Agricultural Practices (AAPs), enforcement has been limited because rules provide the AAFM with broad enforcement discretion.342 Further, SFOs are not required to adhere to either “whole farm” or waste-specific nutrient management plans (discussed below). The AAFM took a more proactive step with their 2007 MFO General Permit which requires farms to operate in accordance with an approved Nutrient Management Plan (NMP)343 and the 2007 LFO Rules which require individual permits for farms that include management standards and field-specific NMPs.344 However, to improve regional water quality this article recommends increased enforcement by the State of MFO General Permit conditions and LFO individual permits. Furthermore, as discussed supra in Part III.B, the State and ANR must immediately assume its federally delegated responsibilities under the CWA and require NPDES permits for all Vermont farms that meet the EPA’s regulatory CAFO definition and discharge, or propose to discharge, pollutants. Further, based on identified violations, ANR should actively pursue CWA enforcement action against all point source agricultural polluters, including CAFOs.345

340. Id. at 14.
341. See Part III.B of this article for an overview of existing state regulations applicable to Vermont farm operations.
342. Local and Watershed Land Use Controls, supra note 281, at 14.
343. Id. at 17.
344. Id. at 19.
345. See supra notes 18, 19, and 240.
1. Mandatory Best Management Practices

Although the development of NMPs for MFOs and LFOs is definitely a step in the right direction, these plans, and most LFOs management and design standards, include primarily permit-based assurances for proper animal waste management, storage, and disposal under existing laws. Vermont’s NMPs do not generally require the use of specific BMPs for cropland or pasture management. Rather, they include assurances from farm operators that their farm-specific plans meet or exceed baseline AAPs and that they will provide “adequate storage of manure, litter, and process wastewater;” proper management of dead animals; diversion of clean water “as appropriate” from production areas; and the development of protocols for land application of manure in accordance with approved site-specific NMPs. Specific cropland and pasture management BMPs which are not required in NMPs, but identified by the AAFM, include strip-cropping, terracing, pasture management, cropland protection, conservation tillage, diversions, erosion or water control structures, tree planting, conservation cropping, and other BMPs identified by the NRCS.

While identified BMPs are eligible for state and federal cost-share funding for up to eighty-five percent of an on-farm improvement project (with funding priority given to farms in the Lake Champlain Basin), BMPs are primarily based on voluntary implementation which has historically paralleled the amount of federal cost-sharing money available. In Vermont, enabling legislation states that the BMP Program was created to provide “state financial assistance to Vermont farmers in support of their voluntary construction of on-farm improvements designed to abate non-point source agricultural waste discharges,” as well as to...

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347. LARGE FARM OPERATIONS RULES, supra note 236, at 21–25; GENERAL PERMIT FOR MEDIUM FARM OPERATIONS, supra note 346, at 19–21.
349. Id.
350. See, e.g., John H. Davidson, Thinking About Nonpoint Sources of Water Pollution and South Dakota Agriculture, 34 S.D. L. REV. 20, 53 (1989) (looking at both early efforts of the SCS to organize effective soil erosion controls and the EPA’s more recent efforts to organize effective NPS pollution controls through BMPs through its 1987 NPS Management Program). Davidson also notes that, “Yet while Congress has largely failed to regulated [NPS] pollution, it at least recognizes, as we all must, that when the time comes to deal with this problem, the tools will be BMPs, land use controls and watershed management.” Id. at 48.
provide “maximum use of federal financial aid for the same purpose.”\textsuperscript{351} BMPs can be required by the AAFM upon petition and after a public hearing to achieve compliance with state water quality standards. Implementation of BMPs on-the-ground is contingent on the farm operator’s receipt of sufficient financial assistance, specifically “a grant of 85 percent of the total cost of a BMP’s design, construction[,] and the auxiliary equipment necessary to operate the system(s).”\textsuperscript{352} In sum, as traditional state and federal non-rule-based approaches for regulating agricultural NPS pollution via suggested BMPs and voluntary incentives, (such as farm improvement project cost-share programs), have largely failed to reduce agricultural runoff. Therefore, it is time to evaluate the use of mandatory BMPs to address persistent water quality issues.\textsuperscript{353} Specifically, Vermont should consider requiring the implementation of specific BMPs for cropland and pasture management in addition to largely waste-specific NMPs.

2. Whole Farm Conservation Plans

Like Conservation Districts, the original concept of agricultural “conservation plans” emerged from the U.S. soil conservation movement during and following the environmental disaster commonly known as the Dust Bowl.\textsuperscript{354} On the basis of its early scientific research, the U.S. SCS (now the NRCS) developed a catalog of “thoroughly familiar and under-appreciated” cropland erosion control techniques. These techniques included terracing, contour plowing, crop rotation, grass waterways, pasture maintenance, stubble mulch, and field windbreaks; they were “practical and economically efficient” and provided tangible contributions to sustainable agriculture and soil conservations.\textsuperscript{355} Similar to water quality problems faced by Vermont and other states today, prevailing conditions during the

\textsuperscript{351} VT. STAT. ANN. tit. 6, § 4821(a) (2009) (emphasis added).
\textsuperscript{352} Best Management Practices Regulations, supra note 348.
\textsuperscript{354} Conservation Plans in Agriculture, supra note 288, at 10,501.
1930s and 1940s could be traced to the practices of private landowners.\(^\text{356}\) The on-farm method then developed by the SCS to deal with the variety among different farm operations in terms of size, production methods, crops, soils, terrain, and social practices, were known as the “Whole Farm Conservation Plan.” As used during the 1930s, these plans were based on detailed land capacity classifications that identified the limitations and potential of specific properties used in farming activities, and then developed management programs for different fields and soils. Like today, on-farm improvements were facilitated by substantial federal subsidies (known as field cost-sharing) for improvements included in the Whole Farm Conservation Plan. Implementation of these farm-specific plans also benefited from capital and operating loans to economically marginal farms from the federal Farmers Home Administration (now known as the Farm Service Agency).\(^\text{357}\)

Since the Dust Bowl, the SCS concept, albeit modified, for agricultural conservation plans has found a place in the laws of various states for NPS runoff control.\(^\text{358}\) In addressing current environmental issues, specifically the “classic situation of controlling runoff from a large number of widely dispersed small sources of nontoxic pollutants,” John H. Davidson, a professor of law at the University of South Dakota, finds that the original conception of Whole Farm Conservation Plans, as developed under the direction of SCS Chief Hugh H. Bennett, is “an idea that responds most appropriately” to NPS pollution runoff from small and widely dispersed sources.\(^\text{359}\) Moreover, Davidson observes that “the concept is that a plan, to be successful, must be applied to the entire farm” and that when a plan is restricted to just one part of a farm, “its purpose is largely defeated.”\(^\text{360}\)

He further notes that, “[d]espite one-half century of heavily subsidized volunteerism, pollution from agricultural run-off has worsened steadily and “[t]here is little hard evidence (although an abundance of hopeful rhetoric) that a voluntary system will ever come close to solving the problem of [NPS] pollution.”\(^\text{362}\) As a condition for the receipt of state or

\(^{356}\) Conservation Plans in Agriculture, supra note 288, at 10,501.
\(^{357}\) Id. at 10,502.
\(^{358}\) See id. at 10,504; see also State Soil Erosion Control Laws, Conservation Plans and Nonpoint Pollution, supra note 355, at 424-431 (discussing the South Dakota, Illinois, and Texas statutes addressing NPS runoff control).
\(^{359}\) Conservation Plans in Agriculture, supra note 288, at 10,505.
\(^{360}\) Id. at 10,505-06.
\(^{361}\) Id. at 10,507.
\(^{362}\) State Soil Erosion Control Laws, Conservation Plans and Nonpoint Pollution, supra note 355, at 442 (“Paying half of the cleanup costs of practices not otherwise commending themselves to users is an unlikely way to provoke a raid on the treasury. Altruism, discounted by fifty percent, has yet
federal financial support, farm operators could be required to demonstrate compliance with Whole Farm plans. When used to reduce NPS runoff, Davidson recommends that these conservation plans be closely tied to the quality of receiving waters and be related to specific pollution control objectives included in state water quality standards. Finally, he cautions that while plans can serve as a good approach to deal with runoff from a large number of dispersed sources, they are not designed to respond to intensive, specialized, and industrial agriculture. In sum, the use of Whole Farm Conservation Plans as originally proposed by the SCS, with additional standards related to current state water quality objectives, appears to have strong potential for reducing NPS runoff from Vermont’s more than 900 SFOs. Also, as discussed above, the requirement of specific cropland and pasture BMPs, especially for the State’s MFOs and LFOs (which totaled 157 and 18 respectively from 2008 AAFM farm survey data),363 would also enhance regional water quality, specifically in the impaired Lake Champlain Drainage Basin.

D. Taxation of Agricultural Inputs and Byproducts; Farm-Related Tax Abatement

1. Taxation of Agricultural Inputs and Byproducts

Modern agriculture in Vermont, as in many parts of the developed world, contributes positive and negative externalities to society. Production of food supplies, coupled with the preservation of socially valuable open space, scenic vistas, and cultural resources are examples of positive externalities. Environmental damage caused by nutrient pollution and pesticide runoff onto adjacent land and water (which effect fish and wildlife resources), as well as ecological services (e.g., clean water for consumption, domestic and commercial use, as well as recreation) are examples of negative externalities. Another possible policy approach and market-based economic tool to reduce some negative environmental externalities produced by agricultural operations is taxation of, or administrative fees on, agricultural inputs (e.g., fertilizers and pesticides) and byproducts (e.g., manure and other farm residues) which contribute to NPS pollution.364 Dispersed NPS pollution from agricultural operations is

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364. DAVID PEARCE & PHOEBE KOUNDOURI, WORLD BANK GROUP, FERTILIZER AND PESTICIDE TAXES FOR CONTROLLING NON-POINT AGRICULTURAL POLLUTION 1 (2003), available at
an economic externality because it represents a production cost that farm operators are not required to internalize or financially account for in farming operations.\textsuperscript{365} Due to these externalities, combined with other factors (such as federal farm subsidies), the market price of agricultural commodities (e.g., milk, beef and feed corn) often does not reflect the full costs associated with their production. Therefore, the typical farmer running their business as an economically rational actor is likely to over-produce, and over-commit resources to their agricultural activities.\textsuperscript{366} Additionally, they are likely to over-use inexpensive commercial fertilizers (as a form of cheap insurance to increase crop yields),\textsuperscript{367} and manure (as another source of fertilizer and a method of inexpensive livestock waste disposal) in field-based applications.

Internalization is a classic solution to an economic externality. If currently externalized costs were internalized by individual farm operators agricultural commodities prices may more closely reflect actual environmental and social costs, assuming the market allows farmers to pass on these production costs. But, “only the most saintly of farmers will voluntarily internalize these costs,” which accrue off-farm and off-balance sheet, therefore “internalization will require some form of government inducement.”\textsuperscript{368} Further, market conditions may not allow farmers to pass on these internalized costs, which could jeopardize the commercial viability of economically fragile farming operations. Thus, for measurable environmental and social progress to be made, the government must provide strong public policy inducements while remaining appropriately sensitive to the economic realities and constraints of farming operations, but not overly protective of socially unacceptable agricultural land use and management practices.\textsuperscript{369} The current and historic use of mostly incentive-based “carrots” (such as farm subsidies, low interest and non-recourse loans, and voluntary cost-share programs) by federal and state governments has not generated a sufficient interest in on-farm improvements necessary

\textsuperscript{365} George A. Gould, \textit{Agriculture, Nonpoint Source Pollution, and Federal Law}, 23 U.C. \textit{Davis L. Rev.} \textbf{461}, 487 (1989); see also \textit{Agriculture, Nonpoint Source Pollution, and Regulatory Control}, \textit{supra} note 353, at 532–35 (describing an incentive-based pollution tax model to reduce NPS pollution); \textit{Pearce \& Koundouri, supra} note 364, at 3; Chang Woon Nam et al., \textit{Taxation of Fertilizers, Pesticides and Energy Use for Agricultural Production in Selected EU Countries}, 17 EUR. \textit{Envt’l} \textbf{267} (2007) (discussing how taxes may be used to reduce NSPS pollution).

\textsuperscript{366} Gould, \textit{supra} 365, at 487.

\textsuperscript{367} \textit{Pearce \& Koundouri, supra} note 364, at 2.

\textsuperscript{368} Gould, \textit{supra} note 365.

\textsuperscript{369} \textit{See id. at} 489 (describing strong inducements required for farmers to reduce pollution).
to reduce the now well-documented environmental externalities of agricultural production, specifically NPS pollution. It is clearly time for regulatory-based measures or ‘sticks’ (including local land use or watershed-based land management controls, mandatory BMPs, farm conservation plans, and the taxation of agricultural inputs and byproducts) to be considered and at least several strategies should be implemented by the State of Vermont in the near future.

Increased taxes (depending on assessment levels), while often viewed as socially and politically unpopular among more conservative U.S. citizens and politicians, 370 may encourage individual reductions in pollution-generating activities; create a more generalized signaling effect by raising social awareness of the environmental costs related to these activities; and provide funding for research and development of new agricultural technologies and environmental restoration programs. 371 However, many forms of farm-generated pollution would be very hard to accurately tax, especially those related to livestock and dairy production, due to the practical and administrative difficulty associated with measuring diffuse and varied nonpoint sources. Furthermore, the fairly extensive experiences with fertilizer and pesticide taxes by individual countries in Europe suggest that while environmental taxes can play some role in the reduction of fertilizer and pesticide use by farm operators, their price elasticity estimates are low, and researchers note that this suggests “comparatively little effect in terms of quantity reduction, unless [taxes] are set at very high rates (relative to price).” 372 However, the same researchers in their 2003 review for the World Bank observe “revenue recycling may have been more effective, with revenues [from taxes] redirected to research and information.” 373 Specifically, the Danish experience suggests that recycling revenues directly back into agriculture severely reduces the policy effectiveness of the tax and using revenues to further research or encourage changes in farming practices appears to make more sense. 374 Finally, damage from pesticides and fertilizers is often cumulative and as a result

370. For example, see publicized citizen group responses to, current related commentaries on, and coverage of the 2009 ‘Town Hall meetings’ debates over the Obama administration’s ‘public option’ proposal for healthcare reform.


372. PEARCE & KOUNDOURI, supra note 364, at 2; see also Nam et al., supra note 365, at 270 (“[T]he dilemma inherent in fertilizer taxation is that the use of fertilizers is so essential that tax rates would have to be very high to modulate consumption. This could result in a major reduction in farm income.”).

373. PEARCE & KOUNDOURI, supra note 364, at 2.

374. Id. at 2–3.
“current damage is partly a function of their past releases.” However, researchers find that if revenues can be hypothecated they can be used for environmental cleanup programs, “so that revenue-raising taxes [on fertilizers or pesticides] nonetheless have an externality reducing function.”

While administratively complex and costly, NPS runoff and related water quality pollution, from both commercial fertilizer inputs and farm-generated manure byproducts, can be linked to annual land application levels. Self-reporting of field application levels can be required as part of farm-specific NMPs, which have been discussed above. Nutrient release inventories, if tied to related taxes or fees, could reduce farm operators’ use of commercial or manure fertilizers in field-based applications and/or provide revenues to mitigate the cumulative effects of off-farm externalities. If established as generally outlined by Prof. Ford Runge, farms using fertilizers in excess of an acceptable application level would be subject to a progressively higher tax rate based on the quantity of their overall nutrient application, while farms using commercial or manure-based fertilizers below this application threshold would be rewarded with decreased taxes, no taxes, or even subsidies. To simplify this already

375. Id. at 3.
376. Id.
377. The trustworthiness of self-reported fertilizer and/or manure application data by individual farm operators is, of course, suspect. However, to reduce inaccuracies and/or fraudulent reporting, the State could also create stiff administrative fines and criminal/civil liability for such behavior, as well as conduct randomized application audits.
378. Farms, Their Environmental Harms, and Environmental Law, supra note 334, at 339.
379. Id. (citing C. Ford Runge, Environmental Protection from Farm to Market, in THINKING ECOLOGICALLY: THE NEXT GENERATION OF ENVIRONMENTAL POLICY, 200, 213–14 (Marian R. Chertow & Daniel C. Esty eds., 1997)). The author acknowledges that the use of a tax-based strategy by any state, including Vermont, to reduce NPS pollution may be socially and politically suspect. However, this strategy would likely not be legally preempted by the Supremacy Clause of the U.S. Constitution or struck down as unconstitutional under the Due Process or Commerce Clauses. See Nutrient Management and Fertilizers, U.S. ENVTL. PROTECTION AGENCY, http://www.epa.gov/oceaaagct/fir.html (last updated Oct. 7, 2009) (pointing out that fertilizers made from domestic and sewer sludge (e.g., biofuels) used in agriculture are specifically regulated under the CWA). Fertilizers made from industrial waste materials are regulated under the Resource Conservation and Recovery Act of 1976 as well as applicable toxic substance-related legislation. Agricultural producers can return manure and crop residues to the soil as fertilizers on their property unless prohibited by state or local laws. 42 U.S.C. § 6901 (2006). While the Federal Environmental Pesticide Control Act (FEPCA) of 1972 (which amended and essentially rewrote the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) of 1947), in its current form “mandates that EPA regulate the use and sale of pesticides to protect human health and preserve the environment.” Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), Overview, U.S. ENVTL. PROTECTION AGENCY, http://www.epa.gov/agriculture/fifa.html (last updated Apr. 21, 2010). No existing federal statute directly relates to use and sale of non-toxic, non-industrial waste and non-sewage sludge based soil fertilizers. See generally U.S. ENVTL. PROT. AGENCY, MAJOR EXISTING EPA LAWS AND PROGRAMS THAT COULD AFFECT AGRICULTURAL PRODUCERS (2007), available at
administratively complex nutrient tax scheme, if used in Vermont, this article recommends that nutrient inputs applied below farm-specific management plan levels, similar to Denmark’s nutrient tax system discussed below, should not be subject to a tax penalty. While inputs below threshold application levels may still contribute to NPS pollution, their contribution should theoretically be small enough that they do not warrant the imposition of administratively costly and complex cost-internalization measures. Building on Runge’s “negative tax” proposal, the French Ministry of the Environment recommended a similarly structured tax on fertilizers and pesticides. As of 2007, France did not have a specific tax on fertilizers, but had established a pesticides tax based on seven categories of noxiousness. However, other European countries, such as Denmark and the Netherlands, have developed detailed “mineral accounts” for individual farms. These accounts record the soil application of nitrogen from commercial fertilizers and farm-generated animal manure, the net uptake of nitrogen by crops, and the net excess balance which is

http://www.epa.gov/agriculture/agmatrix.pdf (discussing statutes that specifically disallow hazardous waste but allow disposal of non-hazardous waste). Thus, state regulation in this area/field is likely not inconsistent and thus preempted by federal legislation, and it is also unlikely that a reviewing court find such a tax-based regulation implicitly preempted by a federal intent to ‘occupy this field.’ Further, if NPS pollution-based taxes, as described herein, were challenged as unconstitutional under the Due Process Clause (applicable to state governments through the Fourteenth Amendment), a reviewing court would likely find the tax-based regulation on fertilizer use and application rationally related to a legitimate state interest (e.g., the improvement of regional water quality and reduction of persistent, diffuse NPS pollution). Finally, state taxation would not likely be found to violate the Commerce Clause under the ‘dormant commerce clause’ doctrine. See Nw. States Portland Cement Co., v. Minnesota, 358 U.S. 450, 452 (1959) (holding that the “net income from the interstate operations of a foreign corporation may be subjected to state taxation provided that the levy is not discriminatory and is properly apportioned to local activities within the taxing state forming sufficient nexus to support the same, and that imposition of such tax did not violate the Commerce Clause or the Due Process Clause of the federal Constitution;” and finding that restrictions placed by the U.S. Constitution on the states in the exercise of their taxing powers are extremely limited); H.P. Hood & Sons, Inc. v. DuMond, 336 U.S. 525 (1949) (finding that states have broad powers to protect inhabitants against perils to health or safety, even by use of measures which bear adversely upon interstate commerce, but that a state may not promote its own economic advantages by curtailment or burdening of interstate commerce). Finally, the author notes that she and the named defendant in this case, former New York State Commissioner of Agriculture and Markets, C. Chester DuMond, may be distantly related, as her paternal relatives and DuMond ancestors for many generations are/were involved in farming and agricultural-related activities in New York.

380. Farms, Their Environmental Harms, and Environmental Law, supra note 334.
381. Id. at 339. The author, despite strong French ancestry and pride inherited from both sides of her family tree, acknowledges that some conservative U.S. citizens and politicians (e.g., staunch Republicans who eat Freedom Fries) may not find French models of social governance or legislation overly persuasive.
382. Nam et al., supra note 365, at 270 tbl.
383. PEARCE & KOURNOURI, supra note 364, at 4.
effectively the nitrate runoff from the farm. Thus, to some extent, “the underlying problem of NPS pollution—namely the difficulty of allocating ambient pollution to sources—is overcome.” As of 2007, the Danish assessed penalties where fertilizers exceeded individual farm-specific quotas. While no tax on fertilizers by the Netherlands was reported as of 2007, during the 1990s the Dutch had also previously applied a tax penalty for fertilizer use above established fertilizer reduction goals.

An alternative to a comprehensive (but administratively complex and costly) nutrient loss tax is a state level point-of-sale tax on all in-state commercial fertilizers. Results from an economic study that modeled input/output behavior of Danish pig farms compared the cost effectiveness of a “Pigouvian” tax (also spelled Pigovian, this is a tax levied on a non-market activity that generates negative externalities and is intended to correct market outcomes) on nitrogen loss to other tax schemes. This comparison to other tax schemes focused on nitrogen use suggests that a simpler tax on all nitrogen inputs generates only a marginal increase in abatement costs. Further, researchers found their results imply that even a limited administrative cost advantage may make an input tax preferable to implementing complex Pigouvian incentives via a nitrogen loss tax. As of 2007, the Swedish government applied its standard national tax rate on the

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384. Id.
385. See Nam et al., supra note 365, at 270–71 tbl. (reporting no taxes on fertilizers). However, during the late 1980s and through the 1990s, the Dutch developed and implemented a three-phased tax program to address nitrate runoff from excessive livestock manure. See U.S. OFFICE OF TECH. ASSESSMENT, AGRICULTURE, TRADE, AND ENVIRONMENT: ACHIEVING COMPLEMENTARY POLICIES 185 (1995). The first phase of the Dutch program (1987–1990) aimed at stabilizing the problem by setting standards for the maximum amount of manure that could be applied per hectare; the second phase (1991–1994) gradually tightened maximum application standards; and the final phase (1995–2000) further tightened standards to balance application of fertilizer and manure against what the environment is estimated to be capable of absorbing. Id. Dutch farmers were initially allowed to meet fertilizer reduction goals in any way they wanted to; but, if they did not meet these goals by a certain date, they were subject to a tax on input use. An estimated 90% of Dutch farmers were able to comply with these regulations. Id. In 1988, the Netherlands also established a tax on livestock feed manufacturers, with the revenue from the tax going toward financing education and research on manure disposal. Id. In the early 2000s, the Netherlands also used a “payment-by-result” policy instrument which did not specify how reductions in fertilizer and pesticide use should be achieved, but gave Dutch farmers increasingly higher financial rewards for decreasing their levels of pesticide and nutrient use, depending on the specific crop under consideration and based on farm-specific nutrient management plans. See Katrin Oltmer & Floor Brouwer, The Netherlands: From Compensation to Legal Constraints, in GOVERNANCE OF WATER-RELATED CONFLICTS IN AGRICULTURE: NEW DIRECTIONS IN AGRI-ENVIRONMENTAL AND WATER POLICIES IN THE EU 133, 144 (Floor Brouwer, Ingo Heinz & Thomas Zabel, eds., 2003).
Austria had previously imposed a sales tax on fertilizers, but abolished this tax in 1997 to increase the competitiveness of its agricultural sector in the European Union, combined with the policy failure of taxes to reduce fertilizer usage (due to the relatively low tax rate imposed). Some U.S. states, including Vermont, impose a tonnage fee on commercial fertilizer sales, although due to

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387. Nam et al., supra note 365, at 271, 274. Further, Pearce and Koundouri reported that in Sweden, it is estimated that the tax reduced demand for fertilizers in 1991 to 1992 by fifteen to twenty percent and also reduced financial optimal dosages by about ten percent. Pearce & Koundouri, supra note 364, at 4. Indirect effects of the use of recycled revenues to fund research were more significant, but ended in 1994 when the nutrient charge became an official tax. Id. The receipt of taxes on pesticides and fertilizers flowed into the general budget and not directly to agricultural research—however, in Sweden, environmental control measures and support programs are financed through the country’s general budget. Nam et al., supra note 365, at 274.

388. Nam et al., supra note 365, at 274. However, Pearce & Koundouri, supra note 364, at 4, note that, in the case of Austria’s fertilizer tax, “the levy is thought to have had a significant ‘signaling’ effect through raising awareness that fertilizers are environmentally damaging.”

389. See VT. STAT. ANN. tit. 6, §§ 361–379 (2010). Specifically, section 364(e) requires that all fertilizer and lime registration and tonnage fees be deposited into a special fund that is restricted to implementing and administering laws “relating to feeds and seeds” (as most recently amended in 2005); section 366(a) requires that an annual inspection fee “at the rate of twenty-five [25] cents per ton” be paid annually to the AAFM Secretary for all fertilizers distributed to non-registered instate consumers; section 367(4) allows for the development of “any reasonable means necessary to monitor and promulgate rules for the use of fertilizers and agricultural limes on Vermont soils where monitoring indicates environmental or health problems.” Id. §§ 364(e), 366(a), 367(4); see also Janet E. Milne, Exploring the Potential Role of State Taxation in Reducing the Flow of Nutrients from Nonpoint Sources into the Waters of New England and New York, in ENVIRONMENTAL TAXES: EXPLORING THE OPTIONS, at App. D (1996) (Envtl. Law Ctr., Vt. Law School & Amos Tuck School of Bus., Dartmouth Coll. Workshop, Discussion paper) (on file with author) [hereinafter Exploring the Potential Role of State Taxation in Reducing the Flow of Nutrients from Nonpoint Sources into the Waters of New England and New York] (summarizing that, as of 1996, New England states and New York imposed fertilizer tonnage fees ranging from $.10/ton to $.25/ton). More aggressively, Iowa under its 1987 Groundwater Protection Act imposes a “groundwater protection fee” of a $0.75 per ton tax on nitrogen-based fertilizer (as well as an annual “inspection fee” of up to $0.20/ton on all commercial fertilizers sold or distributed instate). IOWA CODE. § 200.8(1)(a)(4)(2010). Further, under section 200.4, Iowa requires a license of any person who manufactures, sells or distributes fertilizer or soil conditioners. Under section 200.9, all fertilizer and inspection fees collected are to be deposited in the state’s agricultural management account of the groundwater protection fund, and may be assigned by Iowa’s Secretary of Agriculture to the state’s agricultural experiment station for research and other work projects. In 1993, thirty-five percent of this tax went to the Leopold Center for Sustainable Agriculture at Iowa State University to promote economic and environmentally sustainable agriculture. David Morris, Green Taxes, INSTITUTE FOR LOCAL SELF-RELIANCE (1994), http://www.ilsr.org/ecn/tax/greentax.html. Wisconsin also requires an annual license and fee for the instate manufacture or distribution of fertilizers. WIS. STAT. §§ 94.64(3), (3r). Wisconsin has established an escalating fee schedule for instate fertilizer tonnage fees and surcharges (which started with a basic fee of $.23/ton of commercial fertilizer sold or distributed in 1999–2001 and increased to a $.30/ton for fertilizer sold or distributed after 2001; plus an additional $.10/ton “research fee,” a $.10/ton “groundwater fee,” and finally an “agricultural chemical cleanup surcharge” of $.44/ton on all fertilizer sold or distributed instate after June 2007, “unless the department establishes a different surcharge . . .”). WIS. STAT. § 94.64(4)(a)(1)-(5) (2010). Finally, section 94.64(8m)(a)-(b) requires that “research fees” be forwarded to the University of Wisconsin system “for
relatively low fee levels, the Pigouvian effect of this fee on actually reducing fertilizer use is limited. However, at least several states, including Iowa, Florida, and Wisconsin, direct or allow the use of these fertilizer-related fees for instate research on soil and nutrient management. Like these states, Vermont could specifically earmark all or a portion of its collected fertilizer fees to agricultural and related environmental research by the University of Vermont and other Vermont-based academic institutions. In addition, or alternatively, Vermont could increase its current statute-based fee of $.25/ton, like Iowa has done, to help mitigate the off-farm effects on cumulative nutrient use on in-state water resources, including Lake Champlain. However, point-of-sale taxes and fees on in-state use or distribution of commercial fertilizers would not (unlike a comprehensive nutrient-loss tax) address nutrient runoff associated with farm-generated manure and other agricultural byproducts which are very common to dairy farming. One potential adverse effect on a commercial fertilizer tax is that it “penalizes arable farming, whose farmers contribute [relatively] little to pollution, while favouring livestock farmers with surplus manure.” Thus, if a fertilizer tax or fee was used in Vermont, it should be coupled with other specific tax incentives and penalties to encourage environmentally-sensitive dairy farm manure management and improved methods for manure storage, livestock waste disposal, and/or research on soil management, soil fertility, plant nutrient problems and for research on surface water and groundwater problems which may be related to fertilizer usage.”  

KATHERINE A. SHEEHAN, MANAGING FERTILIZER FOR LAW USE: GUIDANCE FOR LOCAL GOVERNMENT IN WATERSHEDS WHERE NUTRIENT LOADING IS AN ISSUE 11–12 (2007) (discussing Wisconsin and Florida’s fertilizer tax statutes, which use revenues to support related research). Finally, the State of Nebraska imposed an aggressive fee of $4.00/ton on the gross tonnage of all commercial fertilizer sales, use, or “other instate consumption” through December 31, 1996 and a $1.00 fee/ton between January 1, 1997 to December 31, 2001. Neb. Rev. Stat. § 77-4401 (repealed 2001).  

As previously noted above, Vermont more generally requires that all fertilizer registration and tonnage fees be deposited into a special fund that is restricted to implementing and administering laws “relating to feeds and seeds.” Vt. Stat. Ann. tit. 6, § 364(e) (2010).  

See Nam et al., supra note 365. As noted by Nam et al. herein, in EU countries, including Denmark and Sweden, the profit tax burden on arable farming (e.g., crop production) from the taxation of fertilizers in these countries is generally above the level of other model agricultural sector entities studied (milk, pig, and poultry). Id. at 279 fig.2. Nam et al. observe that “[t]he counterpart of arable farming is dairy farming,” which “is subject to the lowest tax burden of all examined sectors.” Id. at 278. Nam et al. conclude that a serious drawback of input use taxes and regulations is that “for the case of non-point source pollution, it is hardly feasible to charge a farm a tax on the basis of its pollution.” Id. at 280. As they observe, “[a]n adverse effect of fertilizer tax is that this also penalizes arable farming, whose farmers contribute little to pollution, while favouring livestock farmers with surplus manure.” Id. at 281.  

Id.  

See Exploring the Potential Role of State Taxation in Reducing the Flow of Nutrients from Nonpoint Sources into the Waters of New England and New York, supra note 389, at 2, 29–35 (providing
reuse as an alternative source of instate electricity production. As proposed by Prof. Janet Milne, related tax incentives could include: tax credits or accelerated depreciation for improved manure storage facilities, including waste diversion systems; tax credits for soil testing, costs of certified crop [or nutrient] management plans, and precision fertilizer applicators; and property tax exemptions for buffer zones along bodies of water [and wetlands], which play a key role in reducing nutrient runoff by filtering it before it reaches environmentally-sensitive surface waters.

2. Farm-Related Tax Abatement

Other popular tax-related tools used by states to support agricultural land use include property tax abatement, or “differential property tax assessment” (also called current use assessment), and/or circuit breaker tax relief credits. Differential property tax assessment laws, which have been passed in all states except Michigan, allow eligible and interested landowners the option to enroll in current use programs. These laws direct local governments to assess agricultural lands at their current use or agricultural value as opposed to the standard assessment of the property at its full fair market value, which is generally higher. Differential assessments can help promote the economic viability of farms by reducing farmers’ property tax burden. Alternatively, states like Michigan have created circuit breaker tax programs that offer tax credits to offset farmers’ property taxes. In Wisconsin and New York, farmers may receive state income tax credits based on the amount of their real property tax bill and income. In Iowa, farmers can receive school tax credits from local governments when taxes exceed a statutory threshold. Under Iowa’s tax credit program, as well as some current use programs, local governments are later reimbursed for credits or lost local property tax revenues from a statewide fund. However, unlike differential assessment programs, property tax credit programs base tax relief credits on farmers’ income.

Vermont’s Agricultural and Managed Forest Land Use Value Program (commonly known as the “Current Use Program”) was created in 1978 and offers landowners use value property taxation based on the productive value and summarizing a detailed proposal of state tax incentives that could encourage farmers to implement improved nutrient management practices aimed at reducing farm-based nutrient runoff).

394. See Agriculture and Ecosystem Services, supra note 258, at 437 (noting that evidence shows that these measures do not deter conversion of land at the urban fringe, where development returns frequently more than offset the higher tax rates).

395. THE FARMLAND PROTECTION TOOLBOX, supra note 252, at 6.

396. Id.

397. THE FARMLAND PROTECTION TOOLBOX, supra note 252.
of their land. In 2000, the current use value of the land enrolled in the program statewide averaged about twenty percentage of its full fair market value. The program allows abatement of farmers’ assessed property taxes. Vermont’s Current Use Program also includes a Land Use Change Tax as a disincentive to farmland development; this tax is about twenty percent of the fair market value of a property, or, in the event of a subdivision and sale of a portion of the enrolled property, a pro rata share of the fair market value of the entire property. In 2008, landowners enrolled over 15,000 properties in the program, totaling over two million acres or about one-third of Vermont’s total land area. As evidenced by high enrollment numbers, Vermont’s Current Use Program has proven very popular among landowners and should definitely be continued. However, in addition to maintaining properties in agricultural or forestry uses, as a condition of continued enrollment, participating landowners should be required to annually certify their use of AAPs, mandatory BMPs, and Whole Farm Conservation Plans, as discussed above. Finally, enrolled properties should be subject to State auditing for compliance with applicable agricultural land management requirements.


399. Current Use Program, supra note 398.

400. Id.

401. Id.

402. See Janet Milne, Watersheds: Runoff from the Tax Code, 34 VT. L. REV. 883, 891 (2010) (discussing Vermont’s Current Use Program and its current lack of leverage to improve agricultural practices). Professor Milne notes that this program’s lack of specific agricultural practice requirements for current use qualification in Vermont “represents a missed opportunity, while the [federal] tax deduction [under section 180 of the U.S. Tax Code] for fertilizer is environmentally negative.” Id.; see also Exploring the Potential Role of State Taxation in Reducing the Flow of Nutrients from Nonpoint Sources into the Waters of New England and New York, supra note 389, at 31 (noting that “states could amend the current use property tax programs to require that farmers must follow specified [BMPs],” and that cross-compliance could help “ensure that existing tax subsidies . . . are not supporting activities that are environmentally detrimental”).

403. See VT. STAT. ANN. tit. 32, § 3752(5) (2006) (requiring forestland enrolled in the Current Use Program to be managed in accordance with an approved forest or conservation management plan or “minimum acceptable standards for forest management”). If forestland is not managed as statutorily required, it is subject to the Land Use Change Tax. Id. However, Vermont’s Current Use Program does not currently include a similar provision for the management of agricultural lands in accordance with AAPs or other applicable agricultural stewardship standards.
One final approach examined by this article which may be applicable to improve water quality and reduce overall NPS phosphorus loading attributed to agricultural activities within the Lake Champlain Basin is watershed-based pollution trading (or “water quality trading”). This market-based approach has been supported and promoted by the EPA throughout the 2000s, reviewed extensively by legal scholars and economists over the last twenty years, and is currently being used and considered for use in impaired watersheds around the country to improve persistent water quality issues, including impairments related to nutrients (e.g., phosphorus and nitrogen) and sediment. While the concept of pollution trading itself has raised strong criticism from influential nonprofit organizations, and


407. Specifically, some groups say trading violates fundamental polluter-pays principles and creates right to pollute. See Kirk W. Junker, Ethical Emissions Trading & The Law, 13 U. BALT. J. ENVTL. L. 149 (2006) (questioning whether an implicit right to pollute has been created through emissions trading); see also King & Kuch, supra note 405, at 10,362 (“Another factor limiting demand for nutrient offset credits is the sentiment among many powerful environmental groups that nutrient regulations should require nutrient discharge reductions by point sources and not allow them to ‘buy their way out of their responsibilities.’”); GROSS & DODGE, supra note 98, at 60 (“While many have applauded EPA's trading policy for providing adding flexibility and lower costs to meeting water-quality standards, some, including certain environmental groups, have criticized the policy because it allows trades between dischargers to different water bodies in the same watershed.”).
its use faces significant market, institutional, political, and social barriers, if used to improve the quality of waters listed under section 303(d) of the CWA, watershed units [e.g., Vermont’s river basins or larger drainage basins such as Lake Champlain] provide a logical framework for trading, as well as yet another possible option for the State to integrate largely unregulated farming activities into its TMDL implementation program.

The biggest success stories for pollution trading come from federal programs enacted under the Clean Air Act. By most accounts, the EPA sulfur dioxide (SO₂) trading program was successful in terms of its administration, compliance, and pollution reduction. However, while today’s persistent water quality issues share some features with air quality issues solved by trading, they also present complex differences, as well as unique administrative and compliance challenges. Due to its questionable application in Vermont, proposing a specific trading scheme for phosphorus


409. Including air quality, wetlands mitigation, and trading of water quantity allocations in states that utilize prior appropriation water allocation systems. For discussion of federal air quality trading, see Reducing Nitrogen Pollution on Long Island Sound, supra note 408, at 153–63; The Current Controversy Regarding TMDLs, supra note 408, at 36; and Farms, Their Environmental Harms, and Environmental Law, supra note 334, at 344–46.

410. Final Water Quality Trading Policy, supra note 404 (stating that for Trading Areas, “[a]ll water quality trading should occur within a watershed or a defined area for which a TMDL has been approved”).

411. Farms, Their Environmental Harms, and Environmental Law, supra note 334, at 345–46.

412. Id. at 344–345 (outlining that under this program, coal-burning electric plants can trade sulfur dioxide pollution units as part of a national policy to reduce industry emissions and thus, a market incentive was created with a declining ceiling on total industry emissions with annual allotments of pollution units based on historic usage with facilities that achieved emissions lower than their allotment could sell additional emissions units); see also Reducing Nitrogen Pollution on Long Island Sound, supra note 408 (discussing the sulfur dioxide trading program); The Current Controversy Regarding TMDLs, supra note 408 (discussing the control provisions in the sulfur dioxide trading program).

413. Farms, Their Environmental Harms, and Environmental Law, supra note 334, at 344–345. But see King & Kuch, supra note 405, at 10,355 (“The characteristics of successful air emission credit trading programs provide a few useful insights for designing successful nutrient credit trading programs. However, the similarities between the two types of trading systems are superficial, and very easy to overemphasize.”).

414. See King & Kuch, supra note 405 (“[P]oint/nonpoint source nutrient trading what is being exchanged is not directly comparable and often too costly to measure directly . . . . Trade regulators in nutrient credit markets must use fairly complex ‘scoring’ criteria to convert nutrient-related gains and losses from different land use changes . . . .”).
within the Lake Champlain Basin is not within the scope of this article. However, this section presents the trading approach as one option for addressing phosphorus loading, provides a brief overview of water quality trading schemes deemed consistent with federal policy, reviews the framework of two active trading programs developed for the Long Island Sound and California’s Grassland drainage basins, identifies factors that make these programs likely inapplicable to the Lake Champlain Basin, and briefly discusses options for future research on a river-basin-specific pilot program and/or permit-specific offset agreements.

The EPA’s Water Quality Trading Policy of 2003 endorses the development and implementation of water quality trading programs for nutrients (such as total phosphorus and total nitrogen), sediment, and other pollutants by states, tribes and interstate agencies. The Agency’s stated purpose for establishing this policy was to capitalize on market-based approaches to achieve improved water quality that would not otherwise be reached through traditional approaches. The fundamentals of water quality trading, as well as the nuts and bolts for establishing different trading schemes (including point/nonpoint source trading and NPS credit exchanges), are well detailed in EPA guidance, specifically its 2007 Water Quality Trading Toolkit for Permit Writers. Notably, suggested state or interstate trading does not apply to technology-based standards. But, for effluent-based limits, the EPA’s 2003 Policy allows for one source (e.g., a point source) to meet its regulatory obligations by using pollution reductions created by another source (e.g., point source or nonpoint source) that has lower pollution control costs. Consistent with the EPA’s focus on using a watershed-based approach to meet the goals of the CWA, the policy requires that trading occur within a watershed or defined area for which a TMDL has been developed. Ultimately, what can be traded are “pollution reduction credits” or pollution reductions greater than that required by regulation or established under an approved TMDL.

415. See Final Water Quality Trading Policy, supra note 404 (stating that the purpose of the policy is to encourage development and implementation of water quality trading programs); see also GROSS & DODGE, supra note 98, at 58–59 (detailing the policy and mechanisms of the EPA Final Water Quality Trading Policy).
416. Id.
417. See TOOLKIT FOR PERMIT WRITERS, supra note 406 (providing background and eligibility information for water quality trading).
418. Final Water Quality Trading Policy, supra note 404.
419. GROSS & DODGE, supra note 98, at 59.
420. Final Water Quality Trading Policy, supra note 404.
421. GROSS & DODGE, supra note 98, at 60.
An often-cited example of a successful water quality trading scheme is the Nitrogen Credit Exchange Program (NCEP), administered by the Connecticut Department of Environmental Protection (CT DEP), for the Long Island Sound watershed. The NCEP began formal operations in 2002, and by 2004, sixty-three nitrogen credit trades had taken place. This program utilizes nitrogen loading data and reduction targets based on a 1990 base load in the Sound’s TMDL, which was jointly prepared by the Connecticut DEP and New York DEP and was approved by the EPA in 2001. The Connecticut legislature then approved a General Permit for Nitrogen Discharges into the Long Island Sound, including the NCEP, which became effective as of January 2002. This General Permit limits nitrogen loading from Connecticut’s seventy-nine municipal sewage treatment plants and allows plants discharging less than their allocation to sell credits to plants discharging more than their allocation. Primarily run as a point-point trading program, the NCEP could allow trading with nonpoint sources. However, “Because point sources dominate the nitrogen load to the Sound and since accurate, affordable, and enforceable methods for controlling nonpoint sources are currently lacking, the program does not rely on nonpoint source reductions.”

Both the Lake Champlain and Long Island Sound TMDLs deal with nutrients and include geographic areas where the bulk of the watershed and pollution sources are within one state. However, that’s about where their similarities end. The Sound’s watershed is about twice the size of Champlain’s and “includes some of the most heavily urbanized areas in the country, with a population of almost 8.5 million people.” (In contrast, Lake Champlain Basin’s population is about 571,000, with about six-eight

422. Final Water Quality Trading Policy, supra note 404, at 2–11; see also The Current Controversy Regarding TMDLs, supra note 408, at 19–37 (discussing the Long Island Sound project).
424. BREETZ ET AL., supra note 406, at 80.
425. Id.
426. Id.
427. Id. at 85.
428. Id. at 87.
429. For the Long Island Sound, the “bulk of the Sound’s watershed is in Connecticut, as are most of the point sources discharging nutrients that threaten its water quality.” Id. at 80. For Lake Champlain, fifty-six percent of the watershed is located in Vermont. Lake and Basin Facts, LAKE CHAMPLAIN BASIN PROGRAM (2004), http://www.lcbp.org/Atlas/HTML/nat_lakefax.htm. Vermont is responsible for most of the Lake’s phosphorus loading. See supra Part III.A (discussing the results of 2002 Lake Champlain Phosphorus TMDL).
430. The Current Controversy Regarding TMDLs, supra note 408, at 19.
percent living in primarily rural Vermont). Importantly, while the Sound is mostly impaired by point source discharges, pollution attributed to point sources in the Champlain Basin was less than ten percent of the Lake’s total phosphorus load in 2008. This difference is significant for water quality trading because point sources, which are regulated under the CWA, represent the primary market demand for the purchase of nutrient pollution credits.

While there is at least one established nonpoint-nonpoint source trading system nationally, the other thirty-eight trading programs established as of 2004 include either point-point, point-nonpoint, or both water quality trades. However, even within these existing programs, point/nonpoint trades have been few. The Grassland Drainage trading program (formally the Grassland Area Farmers Tradable Loads Program) in California’s San Joaquin Valley was the first U.S. trading program among nonpoint sources and includes an internal cap-and-trade program for selenium. However, since selenium loading from irrigated agriculture is accurately measured at drainage pumps, the Grassland Program “may be more akin to a point-point

431. Lake and Basin Facts, supra note 429 (including 541,000 in the United States from the 2000 Census Data, and 30,000 in Quebec, Canada).
433. Shortle & Horan, supra note 423, at 234. Further, according to King & Kuch, supra note 405, at 10,360, the only recorded trades in the United States as of 2003 occurred in 1997, between a point and agricultural nonpoint source located within Minnesota. The trade was involved in permitting to build a wastewater treatment facility in exchange for upstream financing of agricultural practices to reduce farm runoff. Id. “These practices included soil erosion controls, livestock fencing, rotational grazing, critical-area set-asides, and creating/restoring wetland systems.” Id. A more recent point-NPS trading program has also developed in Canada on the South Nation River. Here, new point sources face a zero phosphorus discharge limit, which they can meet by totally eliminating their discharges or purchasing phosphorus credits from farmers at a four-to-one ratio. Id. Agricultural landowners can generate credits by undertaking eligible farm and conservation practices such as: manure and wastewater management, conservation tillage, constructing buffer strips, or implementing on-farm nutrient management plans. Id. However, while the South Nation River program could provide a useful model for Vermont, careful deliberation would need to be taken in considering which agricultural BMPs and other farm practices could qualify as credits. Some, such as NMPs, are already required in Vermont and this article further recommends making practical and low-capital BMPs mandatory. Finally, United States state and federal BMPs cost-sharing programs present the potential for ‘double-dipping’ by participating farmers.
434. As proposed by one young legal scholar, the Grassland drainage basin trading program’s success is based on the presence of five key criteria, including: 1) incentives for polluters within a trading region to meet water quality standards; 2) a locally controlled agency to regulate polluters and enforce pollution limits; 3) a cap on the amount of discharge allowed; 4) a system to monitor polluters; and 5) the likelihood that differences exist in the marginal cost of reducing pollution among regional polluters. Sonya Dewan, Note, Emissions Trading: A Cost-Effective Approach to Reducing Nonpoint Source Pollution, 15 FORDHAM ENVTL. L. REV. 233, 245–52 (2004).
435. See BREETZ ET AL., supra note 406, at 8–9 (listing point-point and point-nonpoint projects).
436. Shortle & Horan, supra note 423, at 239.
trading program.” This program was established in 1998 and includes seven irrigation and drainage districts covering 97,000 acres of irrigated farmland (a geographic area much smaller than Vermont’s side of the Champlain Basin). Trading of selenium credits among districts occurs via a fairly simple administrative structure based on existing record-keeping and monitoring. Selenium loads are monitored at the sixty-two sumps where irrigation drainage waters are pumped. In addition to district-based monitoring, the U.S. Bureau of Reclamation also continuously monitors irrigation discharges at its stations within the San Luis Drain. This federal drain allows irrigation and drainage districts within the Grassland Drainage to convey their irrigation drainage to the San Joaquin River.

Due to its very unique characteristics outlined above, the Grassland Drainage trading program is clearly not applicable to Vermont and its effort to reduce its dispersed agricultural NPS phosphorus loads. Unlike any potential NPS trading program in Vermont, within the Grassland trading program there “is a high degree of certainty compared to many other trading programs, since trades are based on measured selenium loads rather than estimates of BMP effectiveness.” Also unlike the Lake Champlain Basin, which includes many dispersed NPS discharges, “there is no need to adjust credits [within the Grassland trading program] for relative environmental impacts because there is a single discharge point [the San Luis Drain].” Finally, the thirty-nine selenium credit trades made within this program as of 2000 were among well-established irrigation and drainage districts. In Vermont, most NPS trading would likely need to occur between individual farmers and for specific farm operations, which would increase the administrative burden on the State, as well as transaction costs associated with potential trades.

In conclusion, given the likely lack of demand from point sources for water quality credits generated by nonpoint sources; high administrative

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437. BREETZ ET AL., supra note 406, at 10.
438. See id. at 10–18.
439. Id. at 14.
440. Id.
441. Id. at 15.
442. Furthermore, consider the low population density in northern New York, existing New York State constitutional restrictions on development of extensive state-owned lands within the Adirondack Park, and regional land use regulations administered by the Adirondack Park Commission which strictly limit the development and use of privately-owned lands. These factors combined with New York’s (as well as Quebec’s) relatively low contribution to the phosphorus loading in Lake Champlain and the involvement of New York (and/or Quebec) in any trading program, would not likely add much to its overall viability (in terms of adding pollution credit demand) or the likelihood of its success.
costs; “devil-in-the-details” work for establishing the duration of phosphorus credits and their legal nature, trading ratios, nonpoint source risks (e.g., who’s liable if BMPs fail to produce projected load reductions); the difficulty of accurately measuring reductions; and likely policy conflicts between water quality trading, cost-sharing and regulatory controls, implementation of a water quality trading program in the Lake Champlain Basin is not recommended. At most, this article tentatively suggests a pilot program, contingent on the receipt of substantial federal grants, in one of Lake Champlain’s more developed river basins, such as the Winooski. Or, upon further review, one-time offset agreements for specific point sources could be considered for capital-intensive NPS reductions not required by applicable regulations.

IV. HOW TO IMPLEMENT THE LAKE CHAMPLAIN TMDL: FINAL THOUGHTS

This last section provides final remarks on the federalism issues related to the now long-standing, but still slow-moving, efforts across the U.S. to improve the chemical, physical, and biological quality of our nation’s limited water resources. It gives an overall assessment of TMDL

443. Although this is only a rough concept, building on ideas included in Farms, Their Environmental Harms, and Environmental Law, supra note 334, at 345–46, annual farm release inventories created through Vermont farms’ NMPs and future Whole Farm Conservation Plans could provide data for fertilizer, manure, and other farm compost applied annually in problematic watersheds. State regulators could impose a total (and declining) combined agrochemical, manure, and farm compost land application ceiling within a specific watershed (e.g., a river basin), and individual allotments for each farm in the watershed. Note that, learning from pending federal climate change cap-and-trade proposals, how individual allotments are made is important. Ideally, allotments should be made on reasonable per-acreage application levels for specific fields and soils, established after on-farm nutrient and soils assessments. Farmers could use, save (depending on the duration of pollution credits; NCEP credits expire annually), sell, or purchase additional pollution credits depending on their individual decisions for the use of enhanced BMPs (e.g., those not required by state or local regulations) or other advanced technological solutions. According to Ruhl, this type of trading system would satisfy factors considered economically necessary including: a large number of sources emitting the same pollutant, each with different abatement costs; a common pollution-shed in which each source is of no great consequence to the outcome, so long as all sources are included in the trading regime; and a closed market in which the total quantity of allowable pollution being traded is capped (and, very importantly, declines over time to ultimately reduce the overall NPS phosphorus load below levels established by the Lake Champlain TMDL). Id.

444. For examples of existing project-specific, one-time offset agreements, see Breetz et al., supra note 406, and Shortle & Horan, supra note 423. Note that the use of offsets also potentially raises general (e.g., which farmers get selected to enter offset agreements with point sources) and environmental (e.g., the effects of continued point source waste loading on downstream communities and resources) equity issues.
implementation proposals included herein, as well as closing thoughts on how Vermont can implement its Phosphorus TMDL for Lake Champlain and ultimately protect and restore the “disturbed harmonies” of this very significant in-state, interstate, and international body of water. Specifically, this may be accomplished by reducing pollution loads from agricultural nonpoint sources, or in the lightly embellished words of George Perkins Marsh, reconstructing the “damaged fabric which the negligence or the wantonness of former [and current] lodgers had rendered untenable.”

As discussed at length in Part II, the control and reduction of NPS pollution, particularly pollution stemming from diffuse agricultural land use and management activities, presents challenging federalism issues which decrease the potential effectiveness of federal solutions for reducing related nutrient loading. While the Clean Water Act regulates point source discharges, it leaves the regulation of nonpoint sources, specifically through land use and management controls, largely within the discretion of individual States. The text of the Act requires the development of TMDLs for waters listed under section 303(d) of the CWA, including those impaired exclusively by nonpoint sources. On-the-ground implementation of TMDLs, according to existing case law and this author’s review of the Act’s legislative history, is left to States, particularly as related to NPS pollution.

In sum, for better or worse (depending on the issue at stake), our long-revered federalist system of governance divides authority and related legal jurisdiction between Washington, D.C. and the legislative chambers of individual States (including those in Montpelier, Vermont, the least populous state capital).

While our federalist system, with its long-standing deference to states on certain issues and within specific fields of law and policy, including the regulation of land use and management, can be slow to yield results (such as measurable reductions in NPS pollution), it is the system handed down to us by our forefathers and mothers. Hopefully, Vermon ters can muster the necessary amount of state-based social and political will to correct legislatively and administratively at least some, if not all, of the many existing perverse incentives for residents to use environmental commons (e.g., clean air and water) as cesspools for

445. Marsh, supra note 1, at 35.
446. See Vermont: Place and County Subdivision, U.S. Census Bureau (2000), http://factfinder.census.gov/servlet/GCTTable?_bm=n&_lang=en&mt_name=DEC_2000_PL_U_GCTPL_ST7&format=ST-7&_box_head_nbr=GCT-PL&ds_name=DEC_2000_PL_U&geo_id=04000US50 (according to 2000 Census data, Montpelier, Vermont was reported to have a population of 8,035 and the total population of the State of Vermont was 608,827, which was the second lowest reported state population).
dispersed but cumulatively detrimental pollution. Hopefully, we can overcome the classic “tragedy of the commons” for these essential natural resources, specifically for the waters of Lake Champlain which are a defining feature and regional attraction of the Green Mountain State.

For Vermont’s implementation of its Phosphorus TMDL for Lake Champlain, this article recognizes the state’s recent release of a revised TMDL Implementation Plan. In requiring this Plan and delivering its timely completion, the State of Vermont (including the legislature and ANR) has taken commendable first steps. However, as discussed in Part III and IV, there remain additional pollution reduction strategies that must be considered and used to help Vermont successfully implement this TMDL. As the ANR stated, this recently revised Implementation Plan should remain adaptive and open to both continued reevaluation and modification. Present and future state legislatures and executive administrations should follow through with the implementation of this adaptive management approach, which can be used in a socially and scientifically responsible manner.

In a final assessment of possible strategies for implementation of the Lake’s phosphorus TMDL included in this article, there is, at this time, likely a lack of market demand in the majority of the Lake Champlain Drainage Basin to drive most local transfer of developments rights or watershed-based point-nonpoint source water quality trading. Additional drawbacks for TDRs and pollution trading include the need for new administrative accounting systems to track related transfers and trades, as well as effective long-term monitoring and enforcement. While endorsed by the ANR through its current Vermont Watershed Initiative, voluntary river-basin-based collaboration will likely not succeed in reducing existing agricultural NPS pollution unless all essential stakeholders, including affected farmers, are dissatisfied with the status quo. There will likely be vocal social and political opposition to a tax or administrative penalty on field-based applications of both commercial and manure fertilizers above an accepted threshold level, and such a comprehensive nutrient-loss tax scheme would also likely prove to be complex and costly for the state to administer properly. However, an increased tonnage fee on instate fertilizer

448. See REVISED IMPLEMENTATION PLAN: LAKE CHAMPLAIN TMDL, supra note 201, at 6 (“The ability to routinely revisit, reevaluate, modify, and adapt the implementation plan is essential, applying what has been learned from past watershed-based actions and producing improvements in the landscape and water quality in as efficient and effective a manner as possible. In complex systems we need to act in order to learn; a living implementation plan is central to the process of action.”).
449. See generally SHABMAN ET AL., supra note 100.
sales coupled with state tax incentives for improved manure storage and management would be administratively more straightforward and may prove politically palatable. Based on its popularity among in-state landowners, Vermont’s Current Use Program will likely receive continued social and political support. However, this article strongly recommends revision of enrollment eligibility criteria for this existing in-state property tax abatement program, specifically to require annual certification by landowners of their use of Accepted Agricultural Practices and audited compliance by the state with farm-specific Nutrient Management and Whole Farm Conservation Plans.

The best, and likely most successful (in terms of reducing NPS pollution, improving regional water quality and garnering the necessary level of social and political support), proposals for TMDL implementation today and the near future (e.g., next three to five years) call for Vermont to proactively pursue a regulatory shift from relying on voluntary Best Management Practices used by private landowners and loosely enforced baseline Accepted Agricultural Practices to the development of enforceable Whole Farm Conservation Plans (including for the state’s Small Farm Operations) and mandatory basic BMPs. The existing delegation of enforcement authority for AAPs should be removed from the Vermont Agency of Agriculture, Food and Markets and vested with the Agency of Natural Resources, specifically its Department of Environmental Conservation, whose administrative and statutory mission is more aligned with monitoring AAPs and improving water quality. Further, the state must work aggressively to link (both administratively and statutorily) existing institutional frameworks for its river basin planning initiatives with watershed-based or localized land use zoning and land management regulations. While Vermont cities, towns, or counties could be statutorily charged with enacting agricultural land use and management controls as an extension of their current planning and zoning duties, it appears preferable for this authority to be further developed by Vermont’s Natural Resources Conservation Districts. The jurisdictional boundaries of existing Districts should be modified to correspond with watersheds, specifically Vermont’s river basins. Finally, this article recommends several key changes to the Vermont Soil Conservation Act of 1939, including amendments aimed at increasing democratic representation of all residents within a district, not just landowners, and for the democratic selection of new watershed-based Conservation District Councils.

Supporting the regulatory role of enhanced watershed-based conservation districts is an essential step that the state of Vermont needs to take today to successfully address the cumulative environmental effects of
industrialized agricultural land use and management. Watershed-based planning and regulation of agricultural land uses and land management need to carefully assess and objectively evaluate farming inputs and outputs, including environmental externalities. Enhanced districts must be able to control, regulate, and mitigate the harmful externalities produced by today’s modern farming operations, including polluted stormwater runoff, soil erosion, and sedimentation. These watershed-based districts should build upon institutional frameworks in place for current county-level NRCDs, the many years of experience gained from their past natural resources conservation efforts, and incorporate the well-tested procedures and substantive essence of representative democracy. State legislation and policies guiding enhanced district functions need to blend successful voluntary conservation efforts (e.g., Purchase of Agricultural Conservation Easements) and potentially new, innovative Payment of Environmental Services programs with the firm application of state environmental authority, as well as localized land use authority. The implementation of environmental and land use laws and policies by the state and enhanced districts represent a critical turning point for Vermont’s agriculture and water quality.

In the last paragraph of *Man and Nature*, Marsh includes the legal maxim *de minimus non curat lex* or “the law does not concern itself with trifles.” However, as he observes “in the vocabulary of nature, little and great are terms of comparison only; she [Nature] knows no trifles, and her laws are as inflexible in dealing with an atom as with a continent or a planet.” The CWA is among the few federal statutes that attempt to frame a socially constructed law within the more rigid laws of nature. However, despite lofty federal goals, the ultimate success of the Act’s TMDL provisions included within section 303(d) largely depends on state-based land use planning, regulation, enforcement and localized implementation. In Vermont, the institutional and statutory framework for land use planning and controls already exists—it rests in the hands of today’s Vermonter to use this framework to successfully address and reduce the nonpoint source pollution that continues to impair the water quality of Lake Champlain.

451. *Id.*
452. *Id.*
NOTE

THE 2008 FARM BILL:
FRIEND OR FOE TO CONSERVATIONISTS AND WHAT
IMPROVEMENTS ARE NEEDED?

Mary Beth Blauser

TABLE OF CONTENTS

Introduction ............................................................................................... 548
I. Origin of the Farm Bill and Its Connectivity to
United States History................................................................................. 548
   A. A Suppressed Market Resulted in a Need for Government
      Intervention.................................................................................... 549
   B. The Evolution of the Farm Bill......................................................... 550
   C. Modern Farm Bills............................................................................ 551
II. Current Legislation: The Food, Conservation, and Energy Act
   of 2008............................................................................................... 553
III. Criticism of Current Legislation.......................................................... 560
    A. Traditional Commodity Programs Impede the Growth and
       Success of Conservation Programs.............................................. 561
    B. Too Much Funding Is Allocated to Commodity Payment Plans..... 563
IV. Improvement of Current Legislation................................................... 564
   A. Increase Funding for Conservation Programs and Eliminate
      or Reduce Commodity Payment Plans ........................................... 565
   B. Enrollment in Conservation Programs Needs to Be
      Straightforward.............................................................................. 566
   C. Modified Enforcement Policy of Conservation Programs.............. 566
   D. The Farm Bill Provisions Should Be Complementary, Not
      Undercut Each Other ..................................................................... 567
Conclusion ................................................................................................. 568

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INTRODUCTION

Farming is an integral part of our society that affects not only food production but also the environment in every aspect. Agriculture impacts water, soil, and air quality.\(^1\) Water quality is affected by possible runoff of pesticides or manure into watersheds and nearby streams. Soil quality is affected by aggressive farming techniques that lead to soil erosion and depletion of organic matter. Air quality is affected by the release of noxious gases by pesticides and nitrogen from manure.

Since the Great Depression, the federal government has provided farm subsidies to ranchers and farmers in order to supplement their farm incomes.\(^2\) The original goal of farm subsidies was to provide affordable, safe food for Americans. Farm subsidies have achieved the goal of providing affordable food—of all the industrialized nations, Americans spend the least amount of money on food based on the average income.\(^3\) However, this abundant, affordable food has come at a high price, which has taxed the environment and American landscape.

This article addresses conservation concerns arising out of the latest farm bill, the Food, Conservation, and Energy Act of 2008. The purpose of this article is not to suggest an end to all farm subsidies, but to propose approaching farm subsidies in an efficient way that promotes conservation methods.

Part I of this article details the history of farm bills in general and marks major milestones. Part II examines the 2008 Farm Bill, focusing solely on the conservation provisions. Part III describes the 2008 Farm Bill’s shortcomings and failures. Finally, Part IV suggests ways to improve future conservation provisions in farm bills and ways to make these provisions more effective and feasible.

I. ORIGIN OF THE FARM BILL AND ITS CONNECTIVITY TO UNITED STATES HISTORY

The Farm Bill has deep roots in United States history, growing out of historical events such as the Great Depression, the Dust Bowl, and World War II. Congress has slowly intertwined conservation efforts into the text of

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2. See Agricultural Adjustment Act, Pub. L. No. 73-10, 48 Stat. 31 (1933) (describing the origin and purpose of the Farm Bill).
3. PLANTING THE FUTURE, supra note 1, at 3.
the Farm Bill since 1938, when Congress added payments to farmers for soil conservation efforts. Since then, Congress has made several attempts to improve the monetary incentives for different conservation methods in subsequent farm bills. However, these small portions of the Farm Bill have never been the main focus and lack the effectiveness necessary to modify existing farming methods into truly environmentally friendly and sustainable practices.

A. A Suppressed Market Resulted in a Need for Government Intervention

The first Farm Bill was passed in 1933 in an effort to stabilize the market.4 This bill was created in response to the struggles faced by farmers during the Great Depression and depressed commodities prices, which were created by a surplus of crops.5 This surplus gave buyers and distributors all the bargaining power, resulting in farmers accepting lower prices for their crops.6 By 1933, grain elevators did not accept any corn due to the large surplus.7 The disparity between the prices of agricultural and other commodities prompted Congress to act quickly and draft a bill that would provide funding to struggling farmers.8 Congress recognized the urgency of this situation, with markets plummeting, and deemed it a “Declaration of Emergency.”9

The purpose of the 1933 Farm Bill was to stabilize the market and give farmers purchasing power.10 In order to achieve this goal of stabilization, the amount of agricultural commodities produced had to be reduced to balance supply and demand and raise prices.11 The government paid farmers to stop or reduce farming in order to lower supply levels of commodities.12 The commodities included in the bill were wheat, cotton, corn, hogs, rice, tobacco, and milk.13 Congress appropriated a total of one hundred million

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5. Id.
6. Id.
7. Id.
9. Id.
10. Id.
11. Id. § 2, 48 Stat. at 32.
12. Id. § 6, 48 Stat. at 33–34.
13. Id. § 11, 48 Stat. at 38.
dollars for payments to farmers who reduced their production level or acreage level.\textsuperscript{14}

\textit{B. The Evolution of the Farm Bill

Since the original Farm Bill in 1933, there have been many revisions and modifications to subsequent bills. Congress is required every five to seven years to reevaluate the current Farm Bill and make necessary changes.\textsuperscript{15} During reevaluation, Congress may revise and amend the bill to meet the changing needs of farmers.\textsuperscript{16} If Congress allows the bill to expire, the market will revert to pre-Farm Bill status and be free from government intervention, unless Congress grants a temporary extension of specific programs until it drafts and passes new legislation.\textsuperscript{17}

In 1938, Congress made the first attempt at incorporating conservation methods into a farm bill. The 1938 version of the Farm Bill addressed soil conservation.\textsuperscript{18} Congress stated that “the purpose of conserving national resources, preventing the wasteful use of soil fertility, and of preserving, maintaining, and rebuilding the farm and ranch land resources is in the national public interest.”\textsuperscript{19} The Bill made payments to farmers who grew soil-building crops and implemented soil-building farming methods.\textsuperscript{20} Congress attempted to combat the harmful effects of the Dust Bowl of the 1930s by providing incentives to farmers to grow crops that would deposit organic material into the soil, rather than depleting it.

The next major change occurred in 1949 when Congress included new commodities eligible for enrollment in the farm subsidies program. These “nonbasic agricultural commodities” included wool, nuts, honey, Irish potatoes, milk, butterfat, and products of milk and butterfat.\textsuperscript{21} Congress subsidized the sale of these products along with the traditional commodities

\begin{footnotes}
\item[14.] Id. § 12, 48 Stat. at 38.
\item[19.] Id. § 2, 52 Stat. at 31.
\item[20.] Id. §§ 2, 101, 52 Stat. at 31–33.
\end{footnotes}
included in previous farm bills. Farmers who grew the qualifying commodities would receive price support whenever market prices dipped below a pre-set level, as determined by the Secretary of Agriculture.22

The 1965 Farm Bill added additional incentives for farmers to take conservation efforts. Congress authorized the Secretary of Agriculture to make payments to farmers who retired their land.23 Congress included this provision to promote “development and conservation of the Nation’s soil, water, forest, wildlife, and recreational resources.”24 The producer had to enter into an agreement with the federal government that he or she would take a certain amount of acreage out of production for a specified time period.25 Grazing on this land was also prohibited by the Bill if a farmer was enrolled in this program.26

Large farms began taking advantage of these farm subsidies. In efforts to try to limit the amount of payments benefitting large farms, Congress put a limit on payments to farmers. In the 1970 Farm Bill, farmers could not receive government payments of more than $55,000 per year.27

C. Modern Farm Bills

No major changes occurred again until 1996. Five events influenced Congress’ efforts to draft a new Farm Bill. The first event was the release of a report stating that land idling has “retarded growth of U.S. Agriculture.”28 The second event was the newly Republican controlled House and Senate.29 The third event was Senator Richard Lugar’s agenda for the Farm Bill.30 The fourth event was an anonymous paper suggesting that the government cease paying subsidies to farmers and providing an approach to do so.31 The last event was the subordination of the Senate Committee on Agriculture,
Nutrition, and Forestry and the House Committee on Agriculture to the authority of the Senate.\textsuperscript{32}

The growing pressure to eliminate payments greatly influenced the 1996 Farm Bill, which ended traditional payments.\textsuperscript{33} Instead, farmers received payments in decreasing amounts for seven years.\textsuperscript{34} The markets were in a condition that farmers did not need government subsidies.\textsuperscript{35} Prices of all commodities were reasonable and stable for the time being.\textsuperscript{36} This farm bill was different because it promoted conservation more than any previous bill. It simplified “existing conservation programs and improve[d] their flexibility and efficiency.”\textsuperscript{37} The bill allocated more than $2.2 billion in additional funding for conservation programs.\textsuperscript{38} Just as in previous efforts, the farmer had to enter into a contract with the government and abide by the conditions of the program. The Conservation Reserve Program aimed to “protect highly erodible and environmentally sensitive lands with grass, trees, and other long-term cover.”\textsuperscript{39} The Environmental Quality Incentives program combined previous provisions of the Agriculture Conservation Program, Water Quality Incentives Program, Great Plains Conservation Program, and the Colorado River Basin Salinity Control Program.\textsuperscript{40} The Wetland Reserve Program and Swampbuster program aimed to make it easier for farmers to enroll in these programs and designate acreage as wetlands.\textsuperscript{41}

The 2002 Farm Bill was a drastic departure from the 1996 Farm Bill. Congress implemented three types of payments: direct payments, countercyclical payments, and marketing loans. Direct payments were available to farmers who enrolled in the program and entered into a contract to grow a

\textsuperscript{32} See id. at 247 (explaining the dynamic of the Republican controlled Senate, the changes in budget, and the Republican’s singing of the “Contract with America”). The Republicans were tasked with cutting government spending and the Farm Bill was not immune, regardless of what provisions the Senate Committee on Agriculture, Nutrition, and Forestry and the House Committee on Agriculture wanted to include. Id.


\textsuperscript{34} Id.

\textsuperscript{35} Ray, supra note 28, at 248.

\textsuperscript{36} Id.


\textsuperscript{38} Id.

\textsuperscript{39} Id.

\textsuperscript{40} Id.

\textsuperscript{41} Id. at 2.
certain acreage of a specified crop. The counter-cyclical payments kicked in whenever market prices were lower than the set target price. Marketing assistance loans and loan deficiency payments (LDPs) were available to “minimize potential loan forfeitures and subsequent government accumulation of stocks.” Congress made no new conservation efforts.

Given the volatility of the commodity markets and the power of Congress to revise and amend the bill often, it is difficult to draft a farm bill that has staying power. At the same time, Congress needs the flexibility to change the bill in order for it to remain viable and relevant. Congress has made efforts throughout farm bill history to implement conservation measures. However, these measures have yet to gain wide-spread application and use.

II. CURRENT LEGISLATION: THE FOOD, CONSERVATION, AND ENERGY ACT OF 2008

The current Farm Bill is the Food, Conservation, and Energy Act of 2008 (2008 Farm Bill). The $307 billion 2008 Farm Bill was originally vetoed by President Bush. In a statement regarding his veto, President Bush said, “Americans sent us to Washington to achieve results and be good stewards of their hard-earned taxpayer dollars. This bill violates that fundamental commitment.” President Bush vetoed the bill due to subsidies that would benefit wealthy agribusinesses and because farm incomes were already at a record high. The House voted 316 to 108 to override the veto.  

43. Id. at 3.
44. Id. at 5.
48. Id.
President’s veto.\textsuperscript{50} A large majority, eighty-one to fifteen, of the Senate voted the week before to approve the bill.\textsuperscript{51} While some congressional members considered the bill “wasteful,”\textsuperscript{52} the majority recognized the continued need to guarantee a source of affordable food. House Republican Conference Chairman Adam H. Putnam (Fla.) stated, “The principal purpose of agriculture policy in the United States is to guarantee we’re not as dependent on other countries for our food as we are for our fuel . . . .”\textsuperscript{53}

The 2008 Farm Bill, while continuing previous programs such as direct and counter-cyclical payments, focused on conservation. The first conservation attempt renewed tax incentives from the previous Farm Bill for farmers and ranchers who donate acreage for land conservation.\textsuperscript{54} To qualify for the incentive, the property owner has to donate a conservation easement to the federal government or a land trust.\textsuperscript{55} In previous years this tax incentive has been somewhat successful and “has helped conserve a million or more acres of farms, ranches and natural areas.”\textsuperscript{56} Farmers and ranchers who dedicate portions of their land for conservation are not only preventing future development on this land but are also benefiting the environment in a number of ways. The secondary effects of land conservation are clean air, clean water, wildlife habitat, local food sources, and scenic beauty and landscape.\textsuperscript{57} These conservation easements run with the land and apply to successors in interest.\textsuperscript{58} This could arguably lower property values because it can no longer be sold to developers. This portion of the 2008 Farm Bill applies not only to farmers and ranchers, but to

\begin{itemize}
\item President Bush proposed a bill that would exclude farmers whose annual gross income is above $200,000. \textit{Id.}; Weisman & Morgan, \textit{supra} note 47.
\item Id.
\item Id.
\item Id.
\item Id. In doing so, Congressman Putnam broke with the Republican Party including President Bush, House Minority Leader John A. Boehner (R-Ohio) and then Republican Presidential nominee Senator John McCain (Arizona), who opposed the Farm Bill. \textit{Id.}
\item Id.
\item Id.
\item Id.
\end{itemize}
property owners in general. Property owners who donate a conservation easement are eligible to deduct up to fifty percent of their adjusted gross income and carry forward this deduction for fifteen years. Ranchers and farmers are eligible to deduct as much as one hundred percent of their adjusted gross income for a donation of conservation easements, which they can carry forward for fifteen years. This large tax incentive is needed to balance any reduction in property values and make this donation an economically feasible alternative to farming the land or selling it to developers.

The 2008 Farm Bill continued the Highly Erodible Land Conservation Program from the previous farm bill. This program requires producers who farmed highly erodible land before December 23, 1985, to implement certain soil conservation methods to be eligible for program benefits such as direct payments. Another program that continued without any significant change was the Swampbuster program. If a farmer or rancher drained a wetland area to make it farmable land, the federal government could deny payments to the producer for violating the conditions of the Swampbuster program.

For those producers who find the conservation easement program too invasive, an alternative is the Conservation Reserve Program. This program is more flexible than the conservation easement program. It allows producers to sign a contract with the federal government to establish long-term conservation cover on eligible land. This means that the farmer takes the land out of production and plants grass or trees. The government would essentially rent the land from the producer to compensate her for taking the land out of production and planting conservation covers. These contracts range from a minimum of ten years to a maximum of fifteen years.

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60. *Id.*
61. *Id.*
64. *Id.*
65. *Id.*
66. See id. (discussing how the Conservation Reserve Program provides farm owners with half the cost of establishing permanent land cover).
The 2008 Farm Bill capped the maximum acreage eligible for enrollment at 32 million, down from the previous farm bill that allowed 39.2 million acres.\(^68\)

The Wetlands Reserve Program allows the federal government to purchase conservation easements for the sole purpose of restoring wetlands.\(^69\) The price paid must be fair market value. The 2008 Farm Bill increased the total land eligible for enrollment to 3.041 million acres.\(^70\) This program operates on offers and acceptance. The Secretary reviews each application and “buys” conservation easements for wetland restoration based on the following factors: environmental benefits, cost-effectiveness, productivity of the land, environmental threats of continuing use for agricultural production, the extent to which purposes of the program would be achieved, and whether the landowner offers to contribute financially to the cost of the easement.\(^71\) The 2008 Farm Bill added a provision where states, Indian tribes, and nonprofit organizations can partner with the Secretary to select the best offers and which sites would be consistent with the spirit of the program.\(^72\)

The Environmental Quality Incentives Program (EQIP) provides “technical assistance, cost-share payments, and incentive payments to assist crop and livestock producers with environmental and conservation improvements on land used for agricultural production.”\(^73\) The Natural Resources Conservation Service runs this program, which is funded through the Commodity Credit Corporation.\(^74\) This program provides contracts for producers lasting anywhere from one to ten years.\(^75\) The cap that any one individual can receive over a six-year period is $300,000.\(^76\) However, if the Secretary deems the activity will yield great environmental benefits, the total amount received can be up to $450,000.\(^77\) The 2008 Farm Bill added a specific provision for organic farming. Producers who engage in organic production and transition steps are eligible for payments, which are capped at $20,000 per year.\(^78\) This version of the bill also adds specific payments

\(^67\) Id.
\(^68\) Id.
\(^69\) Id.
\(^70\) Id.
\(^71\) Id.
\(^72\) Id.
\(^73\) Id.
\(^74\) Id.
\(^75\) Id.
\(^76\) Id.
\(^77\) Id.
\(^78\) Id.
for farming practices that address and improve air quality.\textsuperscript{79} This program apports $37.5 million of EQIP funds for projects addressing air-quality concerns.\textsuperscript{80} As part of the EQIP, the Agricultural Water Enhancement Program apports $280 million for producers who improve water quality on agricultural lands and participate in water conservation methods.\textsuperscript{81}

The Conservation Stewardship Program “provides payments to producers for adopting or maintaining a wide range of conservation management and land-based structural practices that address 1 or more resources of concern, such as soil, water, and wildlife habitat.”\textsuperscript{82} This is a new program introduced in the 2008 Farm Bill and replaces the Conservation Security Program.\textsuperscript{83}

Under this program, the USDA works with the Natural Resources Conservation Service to provide financial and technical support to producers to “conserve and enhance soil, water, air, and related natural resources on their land.”\textsuperscript{84} Producers have to apply to be in the program on a voluntary basis and must enroll their entire acreage.\textsuperscript{85} There is a wide variety of simple and easy techniques that farmers may already be engaged in that qualify for payments under this program. If producers are not engaged in these conservation activities, it would not be difficult to modify their actions to qualify for these payments. Examples of such activities include: injecting or incorporating manure two inches or more below the surface to reduce odors and to restore nutrients to the soil in an organic manner; when spraying, use drift nozzles and lower the boom so as to reduce the possibility of pesticide drift on neighboring land; replacing wood and oil heaters in orchards and vineyards to improve air quality; on pastures, incorporate native grasses or legumes into fifteen percent of the acreage to restore nutrients; extend a riparian buffer to protect streams and rivers and provide for more wildlife habitat; implement a grazing pattern for allowing pastures to rest; harvesting crops using a higher setting on a

\textsuperscript{79} Id.
\textsuperscript{80} Id.
\textsuperscript{81} Id.
\textsuperscript{82} Id.
\textsuperscript{83} Id.
\textsuperscript{85} Id.
combine to leave at least eighteen inches of stalk in the field to decompose and provide organic matter.\textsuperscript{86}

This program encourages the producer to continue his or her regular course of production and business, but gives options of small modifications in farming techniques that can yield significant environmental impacts. The simple examples above can lead to considerable environmental benefits. Although some methods call for reducing crop production, the subsidy will accommodate for this loss of farmable acres through the payments. These payments take into account environmental benefits achieved, profits foregone by taking the land out of production, and implementation costs.\textsuperscript{87}

There are two types of payments included in this program.\textsuperscript{88} First, an annual payment for installing and adopting the list of conservation activities identified by the NCRS.\textsuperscript{89} Second, supplemental payments for crop rotations.\textsuperscript{90} The producer enters into a contract with the federal government stating that they will continue to practice in an environmentally friendly manner consistent with the examples above. The contract length is five years and is renewable.\textsuperscript{91}

For producers wishing to adopt and apply conservation farming techniques but lacking the expertise, the 2008 Farm Bill includes a technical assistance provision.\textsuperscript{92} This provision makes expert services available to producers who want to implement conservation practices but are unsure how to do so.\textsuperscript{93} This technical assistance can come directly from the USDA or from a third-party consultant.\textsuperscript{94} The 2008 Farm Bill expanded the technical assistance provision to include technical assistance for organic conservation practices.\textsuperscript{95}

The Farmland Protection Program provides money to states to purchase easements on land.\textsuperscript{96} These easements would prevent nonfarm activities and


\textsuperscript{88} Conservation Stewardship Program, supra note 84.

\textsuperscript{89} Id.

\textsuperscript{90} Id.

\textsuperscript{91} Am. Farmland Trust, supra note 87.

\textsuperscript{92} 2008 Farm Bill Side-By-Side, Title II: Conservation, supra note 62.

\textsuperscript{93} Id.

\textsuperscript{94} Id.

\textsuperscript{95} Id.

\textsuperscript{96} Id.
development on the land, and ensure the land will remain productive farmland. The 2008 Farm Bill increased funding for this program from $499 million to $743 million through the year 2012. Forestland is also eligible for this program because it achieves the program’s goals of preventing development of farmland.

Similarly, the Grassland Reserve Program allots money to purchase easements with the purpose of restoring and conserving grassland, while still allowing the producer to use the land for grazing and hay production. This is achieved by the government purchasing an easement or a long-term rental agreement. The rental agreements can be for the duration of ten, fifteen, or twenty years, while the easements are permanent. The capped acreage allowed for enrollment is 1.22 million acres. When considering which applications to approve for enrollment in the program, the government will give higher priority to expiring land that was previously enrolled in the program, or highly sensitive lands that are threatened by uses other than grazing.

The 2008 Farm Bill specifies environmentally sensitive areas and provides conservation programs for these areas. One of the region-specific programs is the Chesapeake Bay Watershed Conservation Program. This is a new provision to the 2008 Farm Bill. The Chesapeake Bay is a highly sensitive ecological site. It is the country’s largest estuary. Its watershed extends across five states for a total of fifteen million acres. These five states include Delaware, Maryland, New York, Pennsylvania, and Virginia. This program authorizes payments to farmers who voluntarily agree to convert productive cropland to natural vegetation in order restore the bay. This creates a riparian buffer that improves water quality and

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97. Id.
98. Id.
99. Id.
100. Id.
101. Id.
102. Id.
103. Id.
104. Id.
107. Id.
108. Id.
109. Id.
provides habitat for animals in the area. 110 Another geographically specific area is the Great Lakes. This program is smaller in funding; it only authorizes five million dollars for technical assistance and education programs to improve water quality and prevent soil erosion in the area.111

Market-Based Incentives for Conservation is a new addition to the 2008 Farm Bill. Through this program, the Secretary can determine which conservation incentives are the most effective and beneficial at achieving conservation goals.112 Another new provision appearing in the 2008 Farm Bill is the Voluntary Public Access and Habitat Incentive Program. This program provides funding to Indian tribes and States to encourage private landowners to give the public access to their land for “wildlife-dependent recreation, including hunting or fishing.”113 A total of fifty million dollars is allotted for this program and landowners must apply to be enrolled.114

Additionally, the 2008 Farm Bill added the new provision to encourage, promote, and conserve habitat for bees. This provision is called the Encouragement of Pollinator Habitat Development and Protection.115

III. CRITICISM OF CURRENT LEGISLATION

While many conservation incentives were continued and new programs were added to the 2008 Farm Bill, it still received criticism for its shortcomings, mainly with the disproportionate funding for conservation subsidies, continuing commodity subsidies, and continuing LDP and direct payment programs. The total funding for conservation programs in the 2008 Farm Bill is $24.3 billion for a five-year period.116 In contrast, total spending for the commodity programs, such as direct payments and counter-cyclical payments, is $41.6 billion for the same time period.117

110. Id.
111. 2008 Farm Bill Side-By-Side, Title II: Conservation, supra note 62.
112. Id.
113. Id.
114. Id.
115. Id.
116. COWAN & JOHNSON, supra note 105, at i.
117. JOHNSON, supra note 16.
A. Traditional Commodity Programs Impede the Growth and Success of Conservation Programs

When enrolled in the commodity programs, farmers receive direct payments from the government for growing a variety of commodities. The five most common types of commodities, corn, cotton, wheat, rice, and soybeans, account for approximately ninety percent of government payments.\textsuperscript{118} Direct payments are cash payments given to producers regardless of production volume or commodity price.\textsuperscript{119} In contrast, counter-cyclical payments are not automatic payments and are only triggered by low market prices.\textsuperscript{120} Congress sets these target points, and, when the market price is below the statutory price point, producers receive payments.\textsuperscript{121} The final types of payments under the commodities program are the marketing loans and loan deficiency payments (LDP). These are nonrecourse loans\textsuperscript{122} that allow farmers to commit their harvested commodities as collateral.\textsuperscript{123} If a farmer does not want to put the commodity up as collateral, the farmer can participate in the LDP.\textsuperscript{124} This provides cash payments to the farmer to sell commodities based on market prices without fronting the commodity as collateral, while still receiving the additional price benefits of the loan program, so it essentially is not a loan.\textsuperscript{125}

Direct payments and LDP payments have received open criticism. Both programs help farmers when market prices are not depressed. There is no reasonable justification for direct payments. Even when grain is selling at an all time high, like in 2006 when corn was at an all time high of four dollars a bushel, producers still receive direct cash payments from the government.\textsuperscript{126} These direct payments are made regardless of market price,

\begin{itemize}
  \item \textsuperscript{118} Jim Monke, Cong. Research Serv., RL 34594, Farm Commodity Programs in the 2008 Farm Bill 3 (2008), available at http://nationalaglawcenter.org/assets/crs/RL34594.pdf.
  \item \textsuperscript{119} Id. at 5.
  \item \textsuperscript{120} Id. at 9.
  \item \textsuperscript{121} Id.
  \item \textsuperscript{122} A nonrecourse loan is a “loan agreement under which the collateral securing a loan [the commodity] is the ultimate source of repayment, and the lender [the federal government] cannot hold the borrower [the producer] personally liable in the event of a default. The lender [the federal government] can seize (and sell) the collateral but cannot seize non-pledged assets or property.” BusinessDictionary.com, http://www.businessdictionary.com/definition/non-recourse-loan.html (last visited Dec. 8, 2010).
  \item \textsuperscript{123} Monke, supra note 118, at 12.
  \item \textsuperscript{124} Id.
  \item \textsuperscript{125} Id.
\end{itemize}
The direct payments were introduced in 1996 as an attempt to bolster farm incomes, while other subsidies were eliminated. The 2002 and 2008 Farm Bills, however, retained these programs.

Senator Richard J. Durbin stated that direct payments are a “bonus . . . not a safety net.” If direct payments are a bonus, as Senator Durbin suggests, the Farm Bill rewards producers for simply growing one of the designated commodities covered by this program. Producers do not have to do anything extra to receive these payments. The National Farmers Union disagrees with Senator Durbin, asserting that this is a safety net, but an inefficient one at that. The Union commented on the program as a “costly and inefficient method for providing a safety net.” Fuel was added to the fire when a representative from the Environmental Working Group learned that, “[y]ou don’t have to sit on a tractor seat, visit the tractor seat, you don’t even have to be alive to get a fixed payment . . . . We have fixed payments to dead people all over the place.” Critics of direct payments argue that lawmakers missed the opportunity in 2002 and 2008 to eliminate the $5 billion a year direct payments.

LDP payments kick in when market prices fall below the government-set minimum, even if it is only for a day. Producers receive this payment in addition to the grain they sell at market prices. The producer could wait to sell the grain on the day that the market offers the best price and still collect the LDP, since the market dipped below the government minimum. This program has caused producers to hope prices would go down, so they would receive LDP payments. One grain dealer stated in congressional hearings, “In the fall of the year, we find the farmer wanting the price to go down . . . . It’s almost unnatural.”

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127. Id.
128. Id.
129. Id.
130. Id.
131. Id.
132. Id.
Not only are these programs wasteful spending, but direct payments and LDPs also encourage producers to plant only the five crops covered in the direct payment program and LDP program. Producers are less likely to enroll their land in conservation programs when it is more economical in the short-term to plant corn, sell it, and receive subsidies from commodity programs. The government must make it economically feasible to leave a hundred-acre field as native grassland, instead of offering greater monetary incentives to plow the field for corn.\footnote{See The Final 2008 Farm Bill – A Retrospective and Briefing, CENTER FOR NATIVE ECOSYSTEMS (June 2, 2008), http://nativeecosystems.org/critterthink/archive/2008/06/03/the-2008-farm-bill-a-retrospective-and-briefing (addressing the shortfalls of the 2008 Farm Bill and how the commodity programs encourage production of top five crops, which indirectly discourages enrollment in conservation programs).}

**B. Too Much Funding Is Allocated to Commodity Payment Plans**

Producers should not be blamed for taking advantage of the Farm Bill and making the most economically feasible decision. Congress should be blamed for allowing these provisions to remain in place to keep large agribusiness constituents happy. By making these commodity programs more attractive than the conservation programs, Congress is indirectly promoting loss of habitat, soil erosion, water pollution, and air pollution. As long as funding for commodity programs is larger and it is more economically beneficial for producers to use land for farming, commodity programs will continue to undercut conservation programs. However, some conservation techniques, like crop rotation or cover crop plantings, can be achieved while enrolled in both programs. But, the weight should shift to conservation programs becoming economically feasible and beneficial, which will give producers greater incentive to adopt these methods.

There are plenty of conservation programs in the 2008 Farm Bill; however, funding is lacking for the programs to make them attractive to producers. Additionally, the programs need to be more efficient and streamlined. There are roughly thirty different conservation programs in the 2008 Farm Bill, all with different types of sign-up or enrollment processes.\footnote{2008 Farm Bill Side-By-Side, Title II: Conservation, supra note 62.} It would be easier for producers to work with their local Farm Service Agency (FSA) to determine which programs they are eligible for. Instead of filling out ten different forms for ten different programs, the process should be streamlined. There is a streamline provision in the 2008 Farm Bill that instructs the Secretary to collect information and review...
applications in a manner that reduces redundancy. However, farmers remain reluctant to enroll in these programs because of all the red tape and steps it takes to get a minimal amount of money for enrolling in a conservation program. Farmers are willing to enroll in commodity programs because it is worth the time and effort—the payout is bigger.

IV. IMPROVEMENT OF CURRENT LEGISLATION

Congress has the opportunity in 2012 to draft new legislation for the Farm Bill. Congress must emphasize conservation in this new bill, not by just simply including conservation in the title. In order for conservation subsidies to become more effective and commonplace in a producer’s practices, greater incentives must be provided. One commentator stated, “Because these programs are voluntary, their effectiveness depends on the willingness of farm operators to participate.”138 The conservation programs are in place, but if no one enrolls because of red tape and confusion, the program will achieve nothing. The policy of all farm bills is to provide an affordable supply of safe food to Americans while protecting, preserving, and conserving farmland, natural resources, and the environment.139 The problem has always been, and will continue to be, how to balance this tension of providing safe affordable food while protecting and conserving the environment.

Commodity payment plans have been a part of all farm bills, with variation, since the first farm bill in 1933.140 Conservation subsidies were not introduced into farm bills until 1985 in the Food Security Act.141 In order to make conservation subsidies more effective and increase enrollment in conservation programs, the bill must provide more economic incentives, streamline the process, and modify some program requirements. The programs are set-up, but now producers must take advantage of them and enroll. The barriers that some farmers complain about are the

141. COWAN & JOHNSON, supra note 105, at 1.
complicated processes of enrolling and that program enforcement is too invasive.

A. Increase Funding for Conservation Programs and Eliminate or Reduce Commodity Payment Plans

Something drastic must be done to encourage producers to enroll in these conservation programs. To promote conservation and environmentally friendly farming methods, programs have to be “not only profitable for farmers, but more profitable than conventional practices.” The funding for conservation programs and the commodity programs should be flipped, thereby allocating the bulk of the money for conservation programs. “Economists typically assume that the decision to adopt a specific farming practice is based on profit-maximizing behavior, given the resources—including the type of farmland and the amount of time and management skills . . . .” Direct payments should be eliminated completely. It is not a market driven payment. Counter-cyclical payments are more economical and efficient because such payments set a minimum that producers will receive for planting a commodity. The counter-cyclical payments are more justifiable than direct payments. Counter-cyclical payments also reassure producers that if the market dives, they will at least be able to recoup the investment needed to produce the crop and will make a small profit.

By cutting out direct payments and LDP, the government can allocate these funds to conservation subsidies. The 2008 Farm Bill allocates $5 billion a year for direct payments alone. This money should be redirected to the conservation programs. If producers still want to maintain federal funding of their operations, they will have to implement conservation methods. This fundamentally forces producers, who want federal funds, to operate their farms and ranches in an environmentally friendly manner and enroll in the conservation programs. Additionally, “emphasis should rather be on removing subsidies for agricultural systems and practices that threaten [the environment and] biodiversity.” By cutting out direct payments for the five most common types of commodities, farmers would be more open to growing different types of crops and increasing

143. LAMBERT ET AL., supra note 138, at 2.
145. McNEELY & SCHERR, supra note 142, at 218.
biodiversity. Without these direct payments, farmers would be more willing to conserve land and contract or donate land for conservation easements as long as it is economically beneficial. We cannot expect landowners to willingly give over land for a minimal price when it is more beneficial to farm the land.

B. Enrollment in Conservation Programs Needs to Be Straightforward

Additionally, the process of enrolling in these programs needs to be simpler. Producers avoid enrolling because the process is complicated, time consuming, and not worth the compensation in the end. To remedy this situation, a producer should be able to fill out one exhaustive form. This form will include everything from total acres farmed, to types of methods used. This way, FSA workers, who act as the liaison between producers and the USDA, can sit down with the producer to determine which programs he or she is eligible for. If a producer is already practicing some of the environmentally friendly farming methods, he or she should get paid to continue to do so. Some programs, such as conservation easements, require contracts. While these contracts should be maintained because property interests are being transferred, all other programs should have a uniform application or form that collects the necessary information at one time. This process should make it easier for a producer to enroll in a program and make him or her more willing to do so.

C. Modified Enforcement Policy of Conservation Programs

Another complaint of producers is that the enforcement of the programs is too invasive. If a producer is enrolled in a program, the federal government and its agents have access to the producer’s property to ensure he is complying with all necessary procedures. Commodity programs do not have this enforcement requirement. For commodity programs, a producer fills out a form stating the amount of acres farmed and the varieties of crops grown, and then the producer receive payments. There is nothing invasive about this program. The enforcement of the conservation programs should be modified. The government employee should contact the farmer at a convenient time and request a site-inspection. This gives the farmer notice, so the farmer can set aside time to give the government employee a tour and discuss the methods and techniques used.

Some opponents of this notice recommendation may think that by giving notice, a producer could enroll in the program and then not actually execute requirements of the program. However, given the nature of most
conservation programs, it is impossible with only a few days notice for the producer to only appear to be executing the conservation methods. Thus, giving notice of a site inspection will not open the door to fraud or violations of the conservation programs.

D. The Farm Bill Provisions Should Be Complementary, Not Undercut Each Other

The Sodsaver program should be mandatory. The Sodsaver program was designed to stop farmers from plowing up native prairie lands to convert to farmland. If a farmer did plow up the native prairie land for agriculture use, the land would be ineligible to receive certain types of federal payments. Farmers did this because “even if the land didn’t produce a crop, farmers knew they would get a federal farm payment.” Plowing up native prairie lands is a concern because it is an integral part of habitat in the Plain states. The Sodsaver provision is voluntary and will only be enacted if approved by the state’s governor. This is another example of how the Farm Bill itself undercuts the effectiveness of the conservation programs by making it more economical to farm the land by direct payments than enroll the land in conservation programs.

The new Farm Bill, which will be drafted in 2012, should increase the acres allowed for enrollment in the Conservation Reserve Program. Thus far the Conservation Reserve Program has been the most successful program to retire farm land. However, the 2008 Farm Bill took 3.4 million acres out of the program in September 2009 when the producers’ contracts expired. The states that have the most expired acreage include Texas, Colorado, Kansas, Montana, South Dakota, and North Dakota. The new Farm Bill put a cap on acreage enrollment in the program, which is why the contracts expired upon reenrollment. As a result, this land will

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148. Gunderson, supra note 146.
149. Id.
152. Id.
153. Id.
likely be plowed up for agriculture use. The repercussions go beyond the loss of habitat for native species such as quail, pheasant, and prairie chickens—\textsuperscript{154}\—the conversion of this land to productive farm land presents a great risk for soil erosion, dust storms, and water pollution.\textsuperscript{155} One farmer voiced his concern about the impact on markets that an additional 3.4 million acres of commodities will produce.\textsuperscript{156}

The program’s goal was to improve soil quality, provide natural habitat, and improve water quality.\textsuperscript{157} The program paid an average of fifty-one dollars an acre to take the land out of production.\textsuperscript{158} One farmer enrolled in the program in 1987, sold all his farm equipment, and lived off the conservation payments.\textsuperscript{159} His contract is now expired with no hopes for renewal.\textsuperscript{160} In order to make a living, he will now have to start farming the land again or rent it to someone who will farm it.\textsuperscript{161}

This is a prime example of the different provisions of the 2008 Farm Bill that inadvertently undermine the good intentions of the conservation programs. Future farm bills need to send a clear message that conservation is the top priority. When faced with balancing the budget and deciding which programs to cut, President Obama took aim at the 2008 Farm Bill.\textsuperscript{162} President Obama wanted to eliminate direct payments to producers whose annual gross income exceeds $500,000.\textsuperscript{163} The proposal shocked many and lacked congressional support and thus, failed.\textsuperscript{164} However, when it comes time to draft the next Farm Bill, Congress should take heed of President Obama’s willingness to change and reform the Farm Bill to encourage an efficient use of taxpayers’ dollars that will also benefit the environment.

**CONCLUSION**

The original Farm Bill started out as useful legislation that benefitted farmers, provided subsidies to stabilize the market, and allowed farmers to

\textsuperscript{154} Id.
\textsuperscript{155} Id.
\textsuperscript{156} Id.
\textsuperscript{157} Id.
\textsuperscript{158} Id.
\textsuperscript{159} Id.
\textsuperscript{160} Id.
\textsuperscript{161} Id.
\textsuperscript{163} Id.
\textsuperscript{164} Id.
make a profit. Today’s Farm Bill is unrecognizable from the original legislation. Conflicting subsidies and incentives make the conservation provisions futile because it is more economical for producers to farm the land instead of enrolling in the conservation programs. Congress can ease its conscience because on paper the conservation provisions look good. However, ineffective red tape, lack of funding, and invasive enforcement make producers reluctant to enroll and participate.

Farm Bills have deep roots in American history and have supplied Americans with an ample source of affordable food. The challenge now is to preserve and conserve the environment, while still maintaining a constant supply of affordable food. Hopefully when the opportunity arises in the coming years to draft new legislation for a farm bill, Congress will strengthen conservation programs. Congress should listen to concerns about water pollution, air pollution, soil erosion, loss of organic matter, loss of natural habitat, and climate change to make conservation provisions an economically viable option for producers, instead of undermining them by providing excessive direct payments and LDPs.
INTRODUCTION

Runoff from animal waste is one of the most pressing water quality issues today. For over thirty years, both federal and state level governments have tried to regulate and monitor disposal of animal waste. However, with
the changing technological and production aspects of the agricultural industry, it has been difficult for policy to address animal waste issues comprehensibly and effectively.\(^1\) As the human population continues to grow, the demand for agricultural products also grows. This growth has dramatically altered the way agriculture is practiced, resulting in high concentrations of animals and crops. Water quality concerns increased considerably as growth and efficiency shifted all-purpose farming to specialty farming, and more time and cost effective measures were adopted in agriculture and animal production.\(^2\)

As the demand for agriculture products has increased, output has multiplied. Between 1930 and 2000 output quintupled; however, inputs of land, labor, and capital have remained fairly constant.\(^3\) Yet, the number of operating farms in the United States has decreased by 4.5 million since 1930, leaving just over 2 million in operation today.\(^4\) Data gathered by the United States Department of Agriculture (USDA), National Agriculture Statistics Service, showed that since 1979 the average per farm acreage has remained in the mid-four hundreds.\(^5\) To demonstrate this dramatic increase in production: the average cow produced 4,508 pounds of milk per year in 1930, and in 2007 the average cow produced 20,267 pounds of milk per year.\(^6\) Another example illustrating this increase is that in 1930 the United States produced 228,147 pounds of turkey, and in 2009 the United States produced 7,149,942 pounds of turkey.\(^7\)

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5. Id.
This increase in output is a result of many factors. Prior to World War II, American agriculture was typically comprised of chickens running freely in the yard, a small herd of milking cows, and a few draft animals. After World War II, American agriculture underwent dramatic changes. First, with the end of the war came the conversion of nitrogen-based munitions (the projectile and its propellant that are fired from a gun, including missiles and bombs) into inorganic fertilizer that was used for the production of crops. Second, there was a huge movement of people into urban centers and fewer people remained in rural America to manage and operate farms. Third, with education streaming in from land grant universities, new technologies, availability of nutrient fertilizers, and an abundance of excellent soils, the farm quickly shifted from providing food for one or two families to an incredibly efficient industry capable of producing products for a global market. With this increased efficiency in production came dense concentration of beef, dairy, swine, and poultry animals.

This concentration of animals led to a concentration of manure, which combined with reduced available acreage has led to environmental degradation. These concerns, in part, led to the creation of the Clean Water Act in 1972. The rate of environmental degradation has increased over the last several decades, prompting the Environmental Protection Agency (EPA) to identify agriculture as the leading source of pollution to surface water. One reason for this pollution is that manure is often mismanaged and inappropriately applied to land. This mismanagement does not allow the land to benefit from manure application and instead results in runoff into water. In order to address these water pollution concerns, the Clean Water Act set forth regulations for concentrated animal feeding operations (CAFOs). While these regulations have been in effect for many years, water pollution caused by manure runoff is still a growing environmental

9. Id. at 286.
10. Id.
11. Id.
12. Id.
13. Id.
14. Id. at 296.
concern. Why are these regulations not curtailing the environmental harm caused by land application of manure?

Through a close analysis, this article explores: first, the benefits and limitations surrounding the land application of manure; second, mandatory permits under the Clean Water Act; third, effectiveness of those permits; fourth, other authors’ suggestions to supplement existing regulation; fifth, a community based initiative case study; sixth, the description of a manure bartering system; and, lastly, this article recommends that current regulation be supplemented with community based initiatives.

I. BENEFITS AND RESTRICTIONS ADJOINED TO THE LAND APPLICATION OF MANURE

When manure is correctly applied to the land, soil and plants receive several benefits. However, there are many limitations that prevent a more intense practice of manure application to land, including: potential adverse water quality caused by runoff, uncertainty regarding the nutrient availability in manure, high transportation and handling costs, and odor issues.

A. Benefits of Manure Application

The application of manure to the land offers benefits to soil, crops, and nearby water bodies; however, many limitations have discouraged greater practice of manure application. Manure is an excellent source of nitrogen, phosphorous, potassium, and secondary nutrients which are required in plant growth. A study conducted by the National Center for Manure & Animal Waste Management concluded that manure used as fertilizer contributes to increased crop utilization and less nutrient loss through soil erosion and surface runoff. The same study established that crop production levels from land where only manure was applied were equal to or higher than those of crops harvested from land applied only with inorganic fertilizer.

16. Risse et al., supra note 8, at 284.
17. Id.
18. Id.
19. Id. at 283.
20. See id. at 283–86 (stating that the benefits of manure application are increased crop growth, soil nutrient retention, and reduced soil erosion and runoff).
21. Id. at 289.
These conclusions resulted from a number of elements. First, manure increases soil organic matter which significantly affects the soil’s physical, chemical, and biological properties. Organic matter bolsters the physical properties of soil by supporting the formation of water-stable aggregates, which help the structure of soil by improving infiltration, porosity, and water-holding capacity. Also, compaction and erosion are decreased, which help to maintain a strong physical structure. These improved physical properties permit seedlings to easily sprout roots and penetrate the surface.

Second, the increased levels of organic matter in the soil reduce dependence on pesticides due to greater amounts of microbial activity. This activity limits the growth of pathogens that cause crop diseases in the soil. However, studies only found depressed pathogen growth in soils where swine and poultry manure were applied, while no consistent results were found with either fresh or composted cow, sheep, or horse manure. These results are attributed to the high level of nitrogen found in swine and poultry manure; although, more research is needed to verify this.

Lastly, the presence of organic matter in the soil reduces runoff and soil loss. Many factors affect the level to which runoff and soil loss are reduced, including: loading rates, soil characteristics, time between application and rainfall, and the solids content of manure. Even with this variability, a 2001 study concluded that land treated with manure showed reduced runoff by up to sixty-two percent and soil loss up sixty-five percent compared to untreated land.

According to the USDA, Economic Research Service, the United States produced sixty-four million tons of manure in 1997. There is a great deal of manure produced yearly in the United States, and research concludes that

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22. Id.
23. Id. at 290.
24. Id.
25. Id.
26. Id.
27. Id. at 291.
28. Id.
29. Id.
30. Id.
31. Id.
32. The study was conducted on more than seventy plot-years of data from seven locations of different tillage and cropping conditions. Id. at 292–93.
there are several beneficial reasons to apply manure to the land. Given these facts, it seems that manure application to the land would be general practice. However, applying manure to the land in ways that will have the greatest benefit on the soil is not widely practiced today and results in manure disposal problems and environmental degradation.34

B. Limitations Surrounding Manure Application

While manure can be beneficially applied to the land, several limiting factors deter and, in some cases, prevent the proper land application of manure. First, the characteristics and nutrient contents of animal manure are dependant on a number of factors, including: animal type, food rations, the process of collection and storage, and the process of application and climate, and is therefore difficult to control.35 Variations obviously exist among species (phosphorus concentration in dairy cow manure can be 6.0 g phosphorous kg⁻¹, while chicken layer manure phosphorus concentrations can be 30.3 g phosphorous kg⁻¹), but such dramatic variability also exists within a single species (phosphorus concentrations in poultry litter have been found to range from 8.0 to 25.8 g phosphorous kg⁻¹).36 This amount of variability makes developing manure application management plans based on average or anticipated nutrient levels quite difficult.37 Since future nutrient levels in the manure are unknown, the manure would need to be tested at the time of application. Currently, there are no inexpensive, on-site test kits available.38

One option is to send samples to labs for testing, but that requires an extended wait for results and during the lab process nutrient concentrations in the manure may change.39 It is also difficult to collect a truly representative sample of manure for nutrient testing.40 Manure is made up of clumps (where the majority of the nutrients are held), organic material, and liquid elements; to be accurate a sample must contain all parts of the manure.41

Another limitation surrounding the land application of manure is public perception. Over the last several decades, the public has become disconnected from agriculture. The media has cast a negative light on the

34. Risse et al., supra note 8, at 286.
35. Id. at 286–87.
36. Id. at 302.
37. Id.
38. Id.
39. Id. at 303.
40. Id. at 302–03.
41. Id.
industry because of issues involving the size of animal operations, noise and odor, and the impact on neighboring land owners. This public perception has limited the land application of manure. If animal manure is going to be successfully applied to land, then the public needs to be accepting of it. Currently, odor problems are the number one complaint brought by citizens against animal facilities. As urban communities creep into agricultural land, these complaints may only worsen.

The final, and greatest limitation, surrounding the land application of manure today is that the farms with the greatest amounts of manure are those with a large concentration of animals and do not have the acreage needed to apply manure at agronomic rates. In these situations, removal of manure off-site is often not economically feasible. It is very expensive to collect, transport, store, and handle manure from point to point. At this time, there are limited options for manure disposal and not much emphasis on research for new manure handling concepts. Due to these limitations, it is not the general practice to apply manure to the land in a beneficial manner.

C. Water Concerns

The concentration of animals and limited available acreage for land application of manure can have potentially detrimental effects to ground and surface water if manure is not applied appropriately to the land. Prior to World War II, manure was not a serious waste problem because enough food was produced locally and recycled to meet the farmer’s needs. Post World War II, the farming community started to see an increase in production efficiency, which resulted in specialized systems devoted to crops or animals existing in separate parts of the country. This specialization has led to concentrated animal units on limited land.

42. Id. at 304.
43. Id.
44. Id.
45. Id.
46. Id. at 303.
47. Id.
48. Id.
49. Id.
50. Id. at 296.
51. Id. at 285–86.
52. Id. at 286.
Without enough land, economic restrictions and other limitations force the application of manure at inappropriate sites, specifically those “with elevated levels of [nitrogen (N)] and [phosphorous (P)] from repeated application, or sites that are susceptible to runoff and leaching of nutrients from manure application.”

Today, this mismanagement of manure can lead to serious environmental degradation. The environmental concerns associated with mismanaged manure application to the land encompass a number of things including: pollution to surface water, leaching of excess nutrients to groundwater, odor issues, and salt contamination of the land from over application. This article addresses only the concerns of pollution to surface water.

In a 1994 report, the EPA found that more than seventy percent of surveyed rivers and streams showed decreased water quality, which “resulted from agricultural nonpoint sources.” These nonpoint sources lost thirty-six percent of their N, five percent of their P, and four percent of their potassium (K) due to collection and storage volatilization, leaching, or runoff. Agricultural land was once a sink for P, but as the demand for agricultural products increased so did the demand for more efficient and less costly sources of fertilizer. Now that both fertilizer and manure are applied, agricultural land has shifted from serving as a sink for P to becoming a source of P. Over the last fifty years, more than 600 tons of P fertilizer has been applied to land worldwide and only about 250 tons has been removed as produce. These increased levels of nutrients being applied to—but not being completely utilized by—the land leads to pollution of surface water, since these lands are already susceptible to runoff.

54. Id.
55. Id.
56. Id. at 3.
57. Id. at 3–4.
58. Id. at 5–6.
60. Id.
61. Id.
D. Eutrophication

The runoff of N and P into surface waters is of serious environmental concern because it leads to eutrophication.\textsuperscript{62} Eutrophication is the increase of nutrients into waters, which promotes increased plant growth and biological productivity and decreases the availability of dissolved oxygen, and which ultimately degrades water quality.\textsuperscript{63} The mismanagement and over-application of manure has increased the nutrient loading rates in waters, resulting in increased eutrophication and degraded water quality.\textsuperscript{64}

According to state and local estuary managers, eutrophication is a critical problem.\textsuperscript{65} Eutrophication limits water use not only economically, but also scenically and recreationally.\textsuperscript{66} These limitations occur because eutrophication results in an increased growth in a variety of different types of algae.\textsuperscript{67} Scenic, recreational, and economic problems result from odor caused by the decomposition of algae on beaches, adverse taste and filtration problems for drinking water,\textsuperscript{68} changes to fish pollutions, and fish kills.\textsuperscript{69}

II. CURRENT REGULATORY ORGANIZATION

The Clean Water Act strives to protect water quality in response to the environmental degradation caused by the mismanagement and over application of manure to the land.\textsuperscript{70} Even with the regulation of confined animal feeding operations, manure runoff is an increasing concern across

\textsuperscript{63} Id.
\textsuperscript{64} Id. at 275–76.
\textsuperscript{65} OFFICE OF WATER, U.S. ENVTL. PROT. AGENCY, ENVIRONMENTAL INDICATORS OF WATER QUALITY IN THE UNITED STATES 17–18 (1996).
\textsuperscript{67} See id. at 28–30 (attributing limited uses of Ontario waters to an increase in algae growth due to cultural eutrophication).
\textsuperscript{68} Id. at 29–30.
\textsuperscript{69} Jack Foechenbach, Eutrophication, 44 J. WATER POLLUTION CONTROL FED’N 1150, 1151 (1972).
\textsuperscript{70} See Clean Water Act (CWA), U.S. ENVTL. PROTECTION AGENCY, http://www.epa.gov/agriculture/lcwa.html (last updated Oct. 10, 2010) (stating that the objective of the CWA “is to restore and maintain chemical, physical, and biological integrity of the nation’s waters by preventing point and nonpoint pollution sources”).
Author Terence J. Centner concludes that current regulations are not successfully addressing water pollution caused by concentrated animal feeding operations because of a lack of accountability and enforceability. Ultimately, he asks for additional regulatory action. Other potential solutions to the manure waste management problem include incentive programs and economic solutions. However, the National Research Council suggests alternative uses for animal manure to alleviate manure runoff.

A. Defining a Concentrated Animal Feeding Operation

An animal feeding operation (AFO) is an animal production facility where:

(i) Animals ... have been, are, or will be stabled or confined and fed or maintained for a total of 45 days or more in any 12-month period, and

(ii) Crops, vegetation, forage growth, or post-harvest residues are not sustained in the normal growing season over any portion of the lot or facility.

Both of these requirements must be met in order for the production facility to be considered an AFO.

A concentrated animal feeding operation (CAFO) meets the definition of an AFO “if it stables or confines as many as or more than the numbers of animals specified” by section 122.23(b)(4) of the regulations created to follow the Clean Water Act. CAFOs are common throughout the United States. In 2006, there were approximately 13,400 CAFOs with 1,000 or
more animal units and 5,600 CAFOs with 300 to 1,000 animal units, totaling 19,000 CAFOs in the United States.\(^7^8\)

**B. Clean Water Act**

The battle of addressing the issues surrounding surface water pollution is not a new challenge. With the passage of the Clean Water Act in 1972 came the identification and regulation of point source and nonpoint source polluters.\(^7^9\) A point source is defined as “any discernible, confined, and discrete conveyance . . . from which pollutants are or may be discharged.”\(^8^0\) Those that are not point sources are considered nonpoint sources.\(^8^1\) The Clean Water Act has made huge strides in reducing the discharge of pollutants caused by point sources.\(^8^2\) However, there is still a growing concern for the pollution caused by nonpoint source polluters.\(^8^3\) The 1998 list of impaired waters provided by states to the EPA found that it would not be possible to meet specified water quality standards through regulation of point source pollutants alone.\(^8^4\) CAFOs are considered point sources under the Clean Water Act; however, the excess application of manure to land can lead to nonpoint source pollution problems.\(^8^5\)

**C. Mandatory Permits Under the Clean Water Act**

Under the CWA, section 122.21(a) states that only a person who “discharges or proposes to discharge pollutants” must apply for a National Pollutant Discharge Elimination System (NPDES) permit.\(^8^6\) The NPDES permit program controls water pollution by regulating point sources that discharge pollutants into waters of the United States.\(^8^7\) Under the Clean Water Act, all CAFOs are defined as point source polluters and are therefore, subject to NPDES permitting.\(^8^8\) In order for a CAFO to avoid the NPDES requirements, it must request and be granted by the permitting

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80. 40 C.F.R. § 122.2 (2010).
81. Id. §§ 122.2, 122.3(e).
82. Marc Ribaudo, Non-point Source Pollution Control Policy in the USA, in ENVIRONMENTAL POLICIES FOR AGRICULTURAL POLLUTION CONTROL 123, 123 (J.S. Shortle & D. Abler eds., 2001).
83. Id. at 124.
84. Id.
85. Id. at 128, 145.
86. 40 C.F.R. § 122.21(a)(1).
87. Clean Water Act (CWA), supra note 70.
88. 40 C.F.R. § 122.23(a).
authority a “no potential to discharge” determination.\footnote{OFFICE OF WATER, U.S. ENVTL. PROT. AGENCY, PRODUCERS’ COMPLIANCE GUIDE FOR CAFOs 17–18 (2003), available at http://yosemite.epa.gov/oppe1/sbrefa.nsf/0/075c88f0d8508d15d6385256d050064f0b0/$FILE/4153.pdf.} This determination is granted once a CAFO provides evidence to the permitting authority that it will not discharge “manure, litter, or process wastewater to surface waters.”\footnote{Id. at 17.} This includes providing evidence that no discharges can result from accidents or human error.\footnote{Id. at 17.} Based on the 2006 approximation of 19,000 CAFOs in the United States, 14,019 still needed to be issued NPDES permits.\footnote{WIEDEMAN, supra note 78.} Therefore, the NPDES program may not be an effective CAFO regulation.

\section*{D. Effectiveness of Regulations}

Regulations in place to control the point-source pollution caused by CAFOs have not been effective in reaching water quality goals.\footnote{CENTNER, supra note 71, at 143.} Do the governmental activities and regulations actually address the issues that cause the pollution? And, are there strict enough enforcement mechanisms in place to effectively punish violators? These are the two questions that Terence Centner, author of \textit{Empty Pastures}, attempted to answer. Centner states that the first question deals with the issue of accountability, and the second, with enforcement.\footnote{Id. at 132.}

First, when it comes to accountability, policy makers must identify the problem causing the pollution and develop regulations that accurately deal with the issue.\footnote{Id. at 132–33.} After these regulations are in place, violators must learn to take the appropriate actions to come into compliance.\footnote{Id. at 133.} In order to discourage polluters, the penalties must be severe enough to successfully deter future violations.\footnote{Id. at 132.}

Second, enforcement requires resources, personnel, and the willingness on the part of the enforcer.\footnote{Id. at 133.} In many states, enforcers are aware that agriculture is a very large industry that provides jobs not only directly on the farm but also in manufacturing, services, wholesale, retail, finance, insurance, real estate, transportation, communication, utilities, construction,
and government. To demonstrate the magnitude that agriculture can play in an economy, this article uses Wisconsin as an example. In the state of Wisconsin, sixteen million acres undergo some type of agricultural production, which accounts for forty-four percent of the total land in the state. Agriculture is responsible for $16.8 billion or 10% of Wisconsin’s total income. Finally, 12.2% of the state is employed by agriculture or some sort of agricultural service. This large impact on the state economy causes significant political pressure, thus affecting the willingness of enforcers. While this may be an example of why an enforcing agency is unwilling to enforce the law, it is often difficult to distinguish between unwillingness and inability caused by lack of personnel. In either case, the lack of enforceability allows for continued manure runoff, which leads to environmental degradation. Centner concludes that both accountability and enforcement by the government have failed to achieve the desired water-quality goals, and “additional regulatory action” is needed to increase compliance.

E. Additional Manure Management Solutions

A potential solution to the manure waste management problem suggests that the monitoring of manure production through the use of monetary incentives and taxes is part of the answer to dealing with excess manure. One possible incentive is to charge animal operations a tax for producing above the optimal level of waste. To avoid the tax, animal operators would keep manure production at the level where the marginal benefits would equal the marginal social costs. The level is determined by the amount of nutrients the soil can utilize and the tax would represent the

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102. Id.

103. CENTNER, supra note 71, at 138.

104. Id. at 138.

105. Id. at 143.

106. Zilberman et al., supra note 1, at 177.

107. Id. at 163.

108. Id.
social cost caused by any runoff of nutrients due to lack of soil utilization availability.109

A second incentive based recommendation is a cap and trade program that distributes permits to producers that cap their waste allotment based on historical production levels and allows for trading of the permits.110 The final incentive based recommendation is to offer producers a subsidy that is equal to the optimal level of waste for reducing their manure production below its initial level.111 The idea behind these recommendations is that producers’ self-interest in the monetary incentives or taxes will lead them to act in a responsible manner and reduce their manure production to socially optimal levels.112

Another potential solution to the manure waste management problem suggests the following economic solutions in order to provide for “environmentally friendly manure management.”113 First, there are greater environmental benefits when animal producing facilities are smaller and are greater in number.114 In order to establish these smaller and more frequent facilities, the combination of “a per acre limit on animal numbers” or “a direct limit on the size of facilities” would need to exist.115 Second, “economic efficiency may be enhanced by regulating observable producer choices that affect both their manure spreading practices and the environmental effects of these practices.”116 Lastly, greater regulation of producer choices will decrease the risk of spills and leaks associated with manure storage facilities.117 These suggestions strive to create the abovementioned smaller and more spaced out facilities, thus creating “environmentally friendly manure management.”118

As described earlier, CAFOs do not have the acreage necessary to apply manure at an agronomical rate.119 As animal concentrations have increased over the years, the average acreage owned by a farm has remained virtually unchanged since the 1970’s.120 This difference in growth between farm acreage and animal concentration resulted in more manure without

109. Id. at 162–63.
110. Id. at 163.
111. Id.
112. Id.
113. Innes, supra note 74, at 113.
114. Id. at 112.
115. Id. at 112–13.
116. Id. at 113.
117. Id.
118. Id.
119. See supra Part I.B.
120. American Farms, supra note 4.
providing additional land for manure application.\textsuperscript{121} Based on agriculture trends of growth and overproduction, this article discusses a solution that can help to mitigate the manure runoff problems without waiting for regulatory, monetary, or governmental incentives to create change. These solutions require legislative action, extensive resources, and a significant amount of time for implementation. The “National Research Council has suggested that reducing nutrient loading of agricultural land will be difficult to achieve unless alternative means of using animal manure by-products are developed.”\textsuperscript{122} For these reasons, this article suggests a community based approach to supplement existing regulations, which does not require the same level of resources to implement.

III. COMMUNITY BASED INITIATIVE CASE STUDY

“CAFOs have failed us. They have damaged our farming communities, degraded our natural resources, and polluted our watersheds.”\textsuperscript{123} The Environmentally Concerned Citizens of South Central Michigan (ECCSCM) believe that CAFOs are creating a great deal of harm to their community. The ECCSCM works hard to raise community awareness and provide contact information for South Central Michigan community members to the local air, water, and emergency pollution hotlines where they can report the citing of any pollution.\textsuperscript{124} However, the ECCSCM are doing more than just complaining about the pollution caused by CAFOs, they are challenging the local community members to adopt best management practices by planting “aromatic or flowering plants; lilac, fruit trees, pines, crabapples, hawthorns, pussy willow, forsythia, trumpet honeysuckle, witch hazel, wild grape, American cranberry, sage, and lavender.”\textsuperscript{125} Additionally, the ECCSCM provides an exhaustive list of the local greenhouses alongside instructional information on how to plant and maintain the new fauna.\textsuperscript{126} This is an example of a community based initiative which is used to supplement existing regulation in order to help curb the stench, noise, dust, and discharges from local CAFOs. It is suggested that community involvement is the best way to find a creative

\begin{itemize}
  \item \textsuperscript{121} See supra Part I.B.
  \item \textsuperscript{122} Edwards & Someshwar, supra note 53, at 4.
  \item \textsuperscript{123} ENVIRONMENTALLY CONCERNED CITIZENS OF SOUTH CENTRAL MICHIGAN, http://nocafos.org/ (last visited Feb. 12, 2011).
  \item \textsuperscript{124} Id.
  \item \textsuperscript{125} ENVIRONMENTALLY CONCERNED CITIZENS OF SOUTH CENTRAL MICHIGAN, http://nocafos.org/hedge.htm (last visited Feb. 12, 2011).
  \item \textsuperscript{126} Id.
\end{itemize}
solution to current pollution problems. Instead of pitting the community against the CAFOs, it is more effective to have a community based initiative to curtail the pollution problem.127

IV. FUTURE EXTENSION NEEDS

In this section, this article looks at all the information that has been presented thus far and makes a community based recommendation that supplements existing regulations. The community level is important to discuss, because these are the people that live, work, and maintain lives in and around CAFOs. Why would it be the job of the local community to help CAFOs with their excess manure problem? As discussed earlier, it is often the case that CAFOs are located on a very small amount of land while maintaining a large concentration of animal units. This imbalance of land acreage to animal numbers results in far more manure production than can be appropriately applied to the land. However, someone may own the land within a distance where CAFOs can apply their excess manure for a feasible cost. This is where the community plays a vital role. A manure bartering system is described in this part, demonstrating the benefits that can occur from a community-CAFO relationship.

A. Manure Bartering System

Manure has benefits when applied at agronomical rates.128 Since CAFOs do not have the land acreage for agronomical application rates, it becomes necessary for initiatives to find land for the excess manure.129 In 1992, the Water Quality Demonstration Project-East River (WQDP-ER) located in Wisconsin developed a manure bartering system.130 Two lists were created, one with the names of those wanting to dispose of manure and one with the names of those willing to receive manure.131 These lists proved to be a very useful tool to provide an exchange of information.132 In some cases, those needing to dispose of manure were unaware that there were people willing to receive manure within a few miles of their

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127. Ribaudo, supra note 82, at 149.
128. Risse et al., supra note 8, at 286.
129. Id. at 303.
131. Id.
132. Id.
operation. The WQDR-ER found that giving this information to those needing to dispose of manure was a successful idea.

The WQDR-ER had to overcome a few challenges before initiating their manure bartering system. One of the initial concerns with this system was that no one was aware of the benefits that manure could have on their land. Before the bartering system was initiated, few community members located near operations that had excess land understood the benefits. In order to overcome this challenge, the WQDR-ER released articles in their newsletter and newspapers about the benefit of manure application. From there, they asked community members to consider joining the list. This was a long process, but showed good results.

Another challenge faced by WQDR-ER was convincing CAFOs with surplus manure to join the list. They found that CAFOs did not want to be labeled as having too much manure, because of the concern of being seen as a potential polluter. In order to overcome this concern, the WQDR-ER kept the list of those needing to dispose of manure private. Once both lists grew to more than twenty names, those needing to dispose of manure were given the names of the nearest community members that would be willing to take excess manure. After a year of implementation, the manure bartering system documented twenty-two exchanges.

This type of manure bartering system is something that could be beneficial across the entire country. As described above, manure offers many benefits to the land. However, if it is not applied at agronomical rates, then there is potential for manure to cause serious environmental degradation. Currently, manure is viewed as a waste and a pollutant. CAFOs do not have the time or resources to transport its excess manure many miles away from its production site. For this reason, it is over-applied to land near the operation. Regulations require CAFOs to receive NPDES permits in the attempt to regulate water pollution. However, due to a lack of

133. Id.
134. Id.
135. Id.
136. Id.
137. Id.
138. Id.
139. Id.
140. Id.
141. Id.
142. Id.
143. Id.
144. Id.
145. Id.
accountability and enforcement, most CAFOs fail to obtain permits. These shortfalls explain why alternatives are needed.

A manure bartering system would be a cost effective way for CAFOs and their local communities to dispose of manure onto land that will either benefit from the manure application or where there is not danger of manure running off into nearby bodies of water. In one case monitored by the WQDP-ER, it was discovered that one CAFO was renting land several miles away but directly across the street from a different CAFO. At the same time, the second CAFO was also renting land close to the first CAFO. Due to the great distance of the rented land from the CAFOs, both facilities were over-applying manure to land owned adjacent to their operations. After the development of the manure bartering system, it was discovered that the operations were renting land near to each other and both had excess manure. This realization allowed for the CAFOs to apply excess manure on the other operation’s rented land.

Today, regulations are not mitigating the problem of pollution caused by manure runoff. This pollution creates concern among citizens that live and work near CAFOs. As seen in the case of the Environmentally Concerned Citizens of South Central Michigan, it is important for the community to become involved and help mitigate the pollution. The ECCSCM is doing this by raising awareness within the community. This is a community involvement step that allows the local population to do more than just complain about the pollution caused by the CAFOs. A manure bartering system has the potential to build a relationship between CAFOs and the local community. In a situation where there is already community involvement and the willingness to make change, there is a greater likelihood that this type of system would be successful.

Environmental degradation caused by manure runoff is a serious issue in the United States. Current regulations are not effective. Suggested monetary solutions could take a long time to implement. Other areas of research such as removing phosphorus from manure before applying it to the land, using manure to produce energy, and removing the liquid in order to make it easier to transport are expensive processes and are still in the beginning stages of research. However, a manure bartering system could begin tomorrow and for free.

146. Id.
147. Id.
148. Id.
149. Id.
150. Id.
This article’s recommendation to concerned community members, extension workers, and worried CAFOs is to start developing relationships within the community that would facilitate the application of manure onto nearby lands. While this is not the answer that will solve all manure pollution problems, it provides a partial solution from the disposal of excess manure and helps to mitigate the manure pollution problem. While a manure bartering system can start to mitigate the excess manure problem, enforcers will be given time to continually develop their working relationship with CAFOs in order to ensure the success of current regulations.

CONCLUSION

Finding an effective solution to the problems associated with animal waste is a great challenge for policy makers, CAFOs, and community members. It is clear by looking at manure, and the potential pollution problems it poses on water systems, that manure pollution caused by runoff is a serious environmental concern. It is very difficult to target manure pollution because of the multidimensionality of the problems that it produces.

Manure offers many benefits to soil and nutrients which are readily available for plant uptake; however, these benefits are not fully understood and are under-researched. Manure is over applied to the land because of limited availability of land, high transportation costs, and other limitations. The over application of manure can result in runoff. Policymakers have been addressing the challenges associated with animal waste for over thirty years. Still, the dimensions, concerns, and political power of the industry place constraints on enforcement and regulation compliance.

Over time, citizens, especially those living in and around communities with CAFOs, have become increasingly aware of the water pollution problems caused by manure runoff and have started to take individual steps toward finding a solution. Research suggests that regulations, for a variety of reasons, have not been successful in solving water quality issues. Acclimating enforcers and CAFOs to the regulations is going to take time, but that does not mean there is nothing that can be done to mitigate the pollution in the meantime. Community members can urge others to implement best management practices and plant trees and flowering plants in places where manure runoff causes environmental damage. In addition, recommendations for a manure bartering system have been made that would facilitate a relationship between community members and CAFOs.
This bartering system is necessary because CAFOs lack the acreage required for manure to be appropriately applied.

However, a manure bartering system is not the final answer. CAFOs still need to develop good management practices and work to achieve compliance with current regulations. A manure bartering system can supplement current regulation and help to mitigate water pollution caused by manure runoff and mismanagement of manure.